

CHAPTER

27

**FLIGHT
CONTROLS**



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-EFFECTIVE PAGES			27-FAULT CODE INDEX (cont)			27-FAULT CODE INDEX (cont)		
1 thru 28	SEP 05/2017		R 128	Sep 05/2017		164	May 05/2016	
27-HOW TO USE THE FIM			129	May 05/2016		165	May 05/2016	
1	Jan 05/2013		130	May 05/2016		166	May 05/2016	
2	Jan 05/2013		131	May 05/2016		167	May 05/2016	
3	Jan 05/2017		132	May 05/2016		168	May 05/2016	
4	Jan 05/2013		133	May 05/2016		169	May 05/2016	
5	Jan 05/2013		134	May 05/2016		170	May 05/2016	
6	Jan 05/2013		135	May 05/2016		171	May 05/2016	
27-FAULT CODE INDEX			136	May 05/2016		172	May 05/2016	
101	Jan 05/2013		137	May 05/2016		173	May 05/2016	
102	May 05/2015		138	May 05/2016		174	May 05/2016	
103	May 05/2015		139	May 05/2016		175	May 05/2016	
104	May 05/2015		140	May 05/2016		176	May 05/2016	
105	May 05/2015		141	May 05/2016		177	May 05/2016	
R 106	Sep 05/2017		142	May 05/2016		178	May 05/2016	
107	May 05/2016		143	May 05/2016		179	May 05/2016	
108	May 05/2016		144	May 05/2016		180	May 05/2016	
109	May 05/2016		145	May 05/2016		181	May 05/2016	
110	May 05/2016		146	May 05/2016		182	May 05/2016	
111	May 05/2016		147	May 05/2016		183	May 05/2016	
112	May 05/2016		148	May 05/2016		184	May 05/2016	
113	May 05/2016		149	May 05/2016		185	May 05/2016	
114	May 05/2016		150	May 05/2016		186	May 05/2016	
115	May 05/2016		151	May 05/2016		187	May 05/2016	
116	May 05/2016		152	May 05/2016		188	May 05/2016	
117	May 05/2016		153	May 05/2016		189	May 05/2016	
118	May 05/2016		154	May 05/2016		190	May 05/2016	
119	May 05/2016		155	May 05/2016		R 191	Sep 05/2017	
120	May 05/2016		156	May 05/2016		192	May 05/2016	
121	May 05/2016		157	May 05/2016		193	May 05/2016	
122	May 05/2016		158	May 05/2016		194	May 05/2016	
123	May 05/2016		159	May 05/2016		195	May 05/2016	
124	May 05/2016		160	May 05/2016		196	May 05/2016	
125	May 05/2016		161	May 05/2016		197	May 05/2016	
126	May 05/2016		162	May 05/2016		198	May 05/2016	
127	May 05/2016		163	May 05/2016		198.1	May 05/2016	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-FAULT CODE INDEX (cont)			27-FAULT CODE INDEX (cont)			27-FAULT CODE INDEX (cont)		
198.2	May 05/2016		198.38	May 05/2016		198.74	May 05/2016	
198.3	May 05/2016		198.39	May 05/2016		198.75	May 05/2016	
198.4	May 05/2016		198.40	May 05/2016		198.76	May 05/2016	
198.5	May 05/2016		198.41	May 05/2016		198.77	May 05/2016	
198.6	May 05/2016		198.42	May 05/2016		198.78	May 05/2016	
198.7	May 05/2016		198.43	May 05/2016		198.79	May 05/2016	
198.8	May 05/2016		198.44	May 05/2016		198.80	May 05/2016	
198.9	May 05/2016		198.45	May 05/2016		198.81	May 05/2016	
198.10	May 05/2016		198.46	May 05/2016		198.82	May 05/2016	
198.11	May 05/2016		198.47	May 05/2016		198.83	May 05/2016	
198.12	May 05/2016		198.48	May 05/2016		198.84	May 05/2016	
198.13	May 05/2016		198.49	May 05/2016		198.85	May 05/2016	
198.14	May 05/2016		198.50	May 05/2016		198.86	May 05/2016	
198.15	May 05/2016		198.51	May 05/2016		198.87	May 05/2016	
198.16	May 05/2016		198.52	May 05/2016		198.88	May 05/2016	
198.17	May 05/2016		198.53	May 05/2016		R 198.89	Sep 05/2017	
198.18	May 05/2016		198.54	May 05/2016		198.90	May 05/2016	
198.19	May 05/2016		198.55	May 05/2016		198.91	May 05/2016	
198.20	May 05/2016		198.56	May 05/2016		198.92	May 05/2016	
198.21	May 05/2016		198.57	May 05/2016		198.93	May 05/2016	
198.22	May 05/2016		198.58	May 05/2016		198.94	May 05/2016	
198.23	May 05/2016		198.59	May 05/2016		198.95	May 05/2016	
198.24	May 05/2016		198.60	May 05/2016		198.96	May 05/2016	
198.25	May 05/2016		198.61	May 05/2016		198.97	May 05/2016	
198.26	May 05/2016		198.62	May 05/2016		R 198.98	Sep 05/2017	
198.27	May 05/2016		198.63	May 05/2016		198.99	May 05/2016	
198.28	May 05/2016		198.64	May 05/2016		198.100	May 05/2016	
198.29	May 05/2016		198.65	May 05/2016		198.101	May 05/2016	
198.30	May 05/2016		R 198.66	Sep 05/2017		198.102	May 05/2016	
198.31	May 05/2016		198.67	May 05/2016		198.103	May 05/2016	
198.32	May 05/2016		198.68	May 05/2016		198.104	May 05/2016	
198.33	May 05/2016		198.69	May 05/2016		198.105	May 05/2016	
198.34	May 05/2016		198.70	May 05/2016		198.106	May 05/2016	
198.35	May 05/2016		198.71	May 05/2016		198.107	May 05/2016	
198.36	May 05/2016		198.72	May 05/2016		198.108	May 05/2016	
198.37	May 05/2016		198.73	May 05/2016		198.109	May 05/2016	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-FAULT CODE INDEX (cont)			27-MAINT MSG INDEX (cont)			27-MAINT MSG INDEX (cont)		
198.110	May 05/2016		111	May 05/2016		147	Sep 05/2016	
198.111	May 05/2016		112	May 05/2016		148	Sep 05/2016	
198.112	May 05/2016		113	May 05/2016		149	Sep 05/2016	
198.113	May 05/2016		114	May 05/2016		150	Sep 05/2016	
198.114	May 05/2016		115	May 05/2016		151	Sep 05/2016	
198.115	May 05/2016		116	May 05/2016		152	Sep 05/2016	
198.116	May 05/2016		117	May 05/2016		153	Sep 05/2016	
R 198.117	Sep 05/2017		118	Sep 05/2016		154	Sep 05/2016	
198.118	May 05/2016		119	Sep 05/2016		155	Sep 05/2016	
198.119	May 05/2016		120	Sep 05/2016		156	Sep 05/2016	
198.120	May 05/2016		121	Sep 05/2016		157	Sep 05/2016	
198.121	May 05/2016		122	Sep 05/2016		158	BLANK	
198.122	May 05/2016		123	Sep 05/2016		27-02 TASKS		
198.123	May 05/2016		124	Sep 05/2016		201	Jan 05/2013	
198.124	May 05/2016		125	Sep 05/2016		202	Sep 05/2016	
198.125	May 05/2016		126	Sep 05/2016		203	Sep 05/2016	
198.126	May 05/2016		127	Sep 05/2016		204	May 05/2013	
198.127	May 05/2016		128	Sep 05/2016		205	Sep 05/2016	
198.128	May 05/2016		129	Sep 05/2016		206	Sep 05/2016	
198.129	May 05/2016		130	Sep 05/2016		207	Sep 05/2016	
198.130	May 05/2016		131	Sep 05/2016		208	Sep 05/2016	
198.131	May 05/2016		132	Sep 05/2016		209	Sep 05/2016	
198.132	May 05/2016		133	Sep 05/2016		210	Sep 05/2016	
198.133	May 05/2016		134	Sep 05/2016		211	Sep 05/2016	
332	BLANK		135	Sep 05/2016		212	Sep 05/2016	
27-MAINT MSG INDEX			136	Sep 05/2016		213	Sep 05/2016	
101	May 05/2016		137	Sep 05/2016		214	Sep 05/2016	
102	May 05/2016		138	Sep 05/2016		215	Sep 05/2016	
103	May 05/2016		139	Sep 05/2016		216	Sep 05/2016	
104	May 05/2016		140	Sep 05/2016		217	Sep 05/2016	
105	May 05/2016		141	Sep 05/2016		218	Sep 05/2016	
106	May 05/2016		142	Sep 05/2016		219	Sep 05/2016	
107	May 05/2016		143	Sep 05/2016		220	Sep 05/2016	
108	May 05/2016		144	Sep 05/2016		221	Sep 05/2016	
109	May 05/2016		145	Sep 05/2016		222	Sep 05/2016	
110	May 05/2016		146	Sep 05/2016		223	Sep 05/2016	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-02 TASKS (cont)			27-02 TASKS (cont)			27-02 TASKS (cont)		
224	Sep 05/2016		260	Sep 05/2016		296	Sep 05/2016	
225	Sep 05/2016		261	Sep 05/2016		297	Sep 05/2016	
226	Sep 05/2016		262	Sep 05/2016		298	Sep 05/2016	
227	Sep 05/2016		263	Sep 05/2016		298.1	Sep 05/2016	
228	Sep 05/2016		264	Sep 05/2016		298.2	Sep 05/2016	
229	Sep 05/2016		265	Sep 05/2016		298.3	Sep 05/2016	
230	Sep 05/2016		266	Sep 05/2016		298.4	Sep 05/2016	
231	Sep 05/2016		267	Sep 05/2016		298.5	Sep 05/2016	
232	Sep 05/2016		268	Sep 05/2016		298.6	Sep 05/2016	
233	Sep 05/2016		269	Sep 05/2016		298.7	Sep 05/2016	
234	Sep 05/2016		270	Sep 05/2016		298.8	Sep 05/2016	
235	Sep 05/2016		271	Sep 05/2016		298.9	Sep 05/2016	
236	Sep 05/2016		272	Sep 05/2016		298.10	Sep 05/2016	
237	Sep 05/2016		273	Sep 05/2016		298.11	Sep 05/2016	
238	Sep 05/2016		274	Sep 05/2016		298.12	Sep 05/2016	
239	Sep 05/2016		275	Sep 05/2016		298.13	Sep 05/2016	
240	Sep 05/2016		276	Sep 05/2016		298.14	Sep 05/2016	
241	Sep 05/2016		277	Sep 05/2016		298.15	Sep 05/2016	
242	Sep 05/2016		278	Sep 05/2016		298.16	Sep 05/2016	
243	Sep 05/2016		279	Sep 05/2016		298.17	Sep 05/2016	
244	May 05/2017		280	Sep 05/2016		298.18	Sep 05/2016	
245	Sep 05/2016		281	Sep 05/2016		298.19	Sep 05/2016	
246	Sep 05/2016		282	Sep 05/2016		298.20	Sep 05/2016	
247	May 05/2017		283	Sep 05/2016		298.21	Sep 05/2016	
248	Sep 05/2016		284	Sep 05/2016		298.22	Sep 05/2016	
249	May 05/2017		285	Sep 05/2016		298.23	Sep 05/2016	
250	Sep 05/2016		286	Sep 05/2016		298.24	Sep 05/2016	
251	Sep 05/2016		287	Sep 05/2016		298.25	Sep 05/2016	
252	Sep 05/2016		288	Sep 05/2016		298.26	Sep 05/2016	
253	Sep 05/2016		289	Sep 05/2016		298.27	Sep 05/2016	
254	Sep 05/2016		290	Sep 05/2016		298.28	Sep 05/2016	
255	Sep 05/2016		291	Sep 05/2016		298.29	Sep 05/2016	
256	Sep 05/2016		292	Sep 05/2016		298.30	Sep 05/2016	
257	Sep 05/2016		293	Sep 05/2016		298.31	Sep 05/2016	
258	Sep 05/2016		294	Sep 05/2016		298.32	Sep 05/2016	
259	Sep 05/2016		295	Sep 05/2016		298.33	Sep 05/2016	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-02 TASKS (cont)			27-02 TASKS (cont)			27-02 TASKS (cont)		
298.34	Sep 05/2016		298.70	Sep 05/2016		O 298.106	Sep 05/2017	
298.35	Sep 05/2016		298.71	Sep 05/2016		O 298.107	Sep 05/2017	
298.36	Sep 05/2016		298.72	Sep 05/2016		O 298.108	Sep 05/2017	
298.37	Sep 05/2016		298.73	Sep 05/2016		O 298.109	Sep 05/2017	
298.38	Sep 05/2016		298.74	Sep 05/2016		O 298.110	Sep 05/2017	
298.39	Sep 05/2016		298.75	Sep 05/2016		O 298.111	Sep 05/2017	
298.40	Sep 05/2016		298.76	Sep 05/2016		O 298.112	Sep 05/2017	
298.41	Sep 05/2016		298.77	Sep 05/2016		O 298.113	Sep 05/2017	
298.42	Sep 05/2016		298.78	Sep 05/2016		O 298.114	Sep 05/2017	
298.43	Sep 05/2016		298.79	Sep 05/2016		O 298.115	Sep 05/2017	
298.44	Sep 05/2016		298.80	Sep 05/2016		O 298.116	Sep 05/2017	
298.45	Sep 05/2016		298.81	Sep 05/2016		O 298.117	Sep 05/2017	
298.46	Sep 05/2016		298.82	Sep 05/2016		O 298.118	Sep 05/2017	
298.47	Sep 05/2016		298.83	Sep 05/2016		O 298.119	Sep 05/2017	
298.48	Sep 05/2016		298.84	Sep 05/2016		O 298.120	Sep 05/2017	
298.49	Sep 05/2016		298.85	Sep 05/2016		O 298.121	Sep 05/2017	
298.50	Sep 05/2016		298.86	Sep 05/2016		O 298.122	Sep 05/2017	
298.51	Sep 05/2016		298.87	Sep 05/2016		O 298.123	Sep 05/2017	
298.52	Sep 05/2016		298.88	Sep 05/2016		O 298.124	Sep 05/2017	
298.53	Sep 05/2016		R 298.89	Sep 05/2017		O 298.125	Sep 05/2017	
298.54	Sep 05/2016		R 298.90	Sep 05/2017		O 298.126	Sep 05/2017	
298.55	Sep 05/2016		R 298.91	Sep 05/2017		O 298.127	Sep 05/2017	
298.56	Sep 05/2016		R 298.92	Sep 05/2017		O 298.128	Sep 05/2017	
298.57	Sep 05/2016		R 298.93	Sep 05/2017		O 298.129	Sep 05/2017	
298.58	Sep 05/2016		R 298.94	Sep 05/2017		O 298.130	Sep 05/2017	
298.59	Sep 05/2016		R 298.95	Sep 05/2017		O 298.131	Sep 05/2017	
298.60	Sep 05/2016		O 298.96	Sep 05/2017		O 298.132	Sep 05/2017	
298.61	Sep 05/2016		R 298.97	Sep 05/2017		O 298.133	Sep 05/2017	
298.62	Sep 05/2016		R 298.98	Sep 05/2017		O 298.134	Sep 05/2017	
298.63	Sep 05/2016		O 298.99	Sep 05/2017		O 298.135	Sep 05/2017	
298.64	Sep 05/2016		O 298.100	Sep 05/2017		O 298.136	Sep 05/2017	
298.65	Sep 05/2016		O 298.101	Sep 05/2017		O 298.137	Sep 05/2017	
298.66	Sep 05/2016		O 298.102	Sep 05/2017		O 298.138	Sep 05/2017	
298.67	Sep 05/2016		O 298.103	Sep 05/2017		O 298.139	Sep 05/2017	
298.68	Sep 05/2016		O 298.104	Sep 05/2017		O 298.140	Sep 05/2017	
298.69	Sep 05/2016		O 298.105	Sep 05/2017		O 298.141	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-02 TASKS (cont)			27-02 TASKS (cont)			27-02 TASKS (cont)		
O 298.142	Sep 05/2017		R 298.178	Sep 05/2017		O 298.214	Sep 05/2017	
O 298.143	Sep 05/2017		R 298.179	Sep 05/2017		O 298.215	Sep 05/2017	
O 298.144	Sep 05/2017		R 298.180	Sep 05/2017		O 298.216	Sep 05/2017	
O 298.145	Sep 05/2017		O 298.181	Sep 05/2017		R 298.217	Sep 05/2017	
O 298.146	Sep 05/2017		O 298.182	Sep 05/2017		O 298.218	Sep 05/2017	
O 298.147	Sep 05/2017		O 298.183	Sep 05/2017		O 298.219	Sep 05/2017	
O 298.148	Sep 05/2017		O 298.184	Sep 05/2017		O 298.220	Sep 05/2017	
O 298.149	Sep 05/2017		O 298.185	Sep 05/2017		O 298.221	Sep 05/2017	
O 298.150	Sep 05/2017		R 298.186	Sep 05/2017		O 298.222	Sep 05/2017	
O 298.151	Sep 05/2017		R 298.187	Sep 05/2017		O 298.223	Sep 05/2017	
O 298.152	Sep 05/2017		R 298.188	Sep 05/2017		R 298.224	Sep 05/2017	
O 298.153	Sep 05/2017		O 298.189	Sep 05/2017		O 298.225	Sep 05/2017	
O 298.154	Sep 05/2017		O 298.190	Sep 05/2017		O 298.226	Sep 05/2017	
O 298.155	Sep 05/2017		O 298.191	Sep 05/2017		R 298.227	Sep 05/2017	
O 298.156	Sep 05/2017		O 298.192	Sep 05/2017		O 298.228	Sep 05/2017	
O 298.157	Sep 05/2017		O 298.193	Sep 05/2017		O 298.229	Sep 05/2017	
O 298.158	Sep 05/2017		O 298.194	Sep 05/2017		O 298.230	Sep 05/2017	
O 298.159	Sep 05/2017		O 298.195	Sep 05/2017		O 298.231	Sep 05/2017	
O 298.160	Sep 05/2017		O 298.196	Sep 05/2017		O 298.232	Sep 05/2017	
O 298.161	Sep 05/2017		O 298.197	Sep 05/2017		O 298.233	Sep 05/2017	
R 298.162	Sep 05/2017		O 298.198	Sep 05/2017		O 298.234	Sep 05/2017	
R 298.163	Sep 05/2017		O 298.199	Sep 05/2017		O 298.235	Sep 05/2017	
R 298.164	Sep 05/2017		O 298.200	Sep 05/2017		R 298.236	Sep 05/2017	
O 298.165	Sep 05/2017		O 298.201	Sep 05/2017		O 298.237	Sep 05/2017	
O 298.166	Sep 05/2017		O 298.202	Sep 05/2017		O 298.238	Sep 05/2017	
O 298.167	Sep 05/2017		O 298.203	Sep 05/2017		O 298.239	Sep 05/2017	
O 298.168	Sep 05/2017		O 298.204	Sep 05/2017		O 298.240	Sep 05/2017	
O 298.169	Sep 05/2017		O 298.205	Sep 05/2017		O 298.241	Sep 05/2017	
R 298.170	Sep 05/2017		O 298.206	Sep 05/2017		R 298.242	Sep 05/2017	
R 298.171	Sep 05/2017		O 298.207	Sep 05/2017		O 298.243	Sep 05/2017	
R 298.172	Sep 05/2017		O 298.208	Sep 05/2017		O 298.244	Sep 05/2017	
O 298.173	Sep 05/2017		O 298.209	Sep 05/2017		O 298.245	Sep 05/2017	
O 298.174	Sep 05/2017		O 298.210	Sep 05/2017		O 298.246	Sep 05/2017	
O 298.175	Sep 05/2017		O 298.211	Sep 05/2017		O 298.247	Sep 05/2017	
O 298.176	Sep 05/2017		R 298.212	Sep 05/2017		O 298.248	Sep 05/2017	
O 298.177	Sep 05/2017		R 298.213	Sep 05/2017		O 298.249	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-02 TASKS (cont)			27-02 TASKS (cont)			27-02 TASKS (cont)		
O 298.250	Sep 05/2017		O 298.286	Sep 05/2017		O 298.322	Sep 05/2017	
O 298.251	Sep 05/2017		O 298.287	Sep 05/2017		O 298.323	Sep 05/2017	
O 298.252	Sep 05/2017		O 298.288	Sep 05/2017		O 298.324	Sep 05/2017	
O 298.253	Sep 05/2017		O 298.289	Sep 05/2017		O 298.325	Sep 05/2017	
O 298.254	Sep 05/2017		O 298.290	Sep 05/2017		O 298.326	Sep 05/2017	
O 298.255	Sep 05/2017		O 298.291	Sep 05/2017		O 298.327	Sep 05/2017	
O 298.256	Sep 05/2017		O 298.292	Sep 05/2017		O 298.328	Sep 05/2017	
O 298.257	Sep 05/2017		O 298.293	Sep 05/2017		O 298.329	Sep 05/2017	
O 298.258	Sep 05/2017		O 298.294	Sep 05/2017		O 298.330	Sep 05/2017	
O 298.259	Sep 05/2017		O 298.295	Sep 05/2017		O 298.331	Sep 05/2017	
O 298.260	Sep 05/2017		O 298.296	Sep 05/2017		O 298.332	Sep 05/2017	
O 298.261	Sep 05/2017		O 298.297	Sep 05/2017		O 298.333	Sep 05/2017	
O 298.262	Sep 05/2017		O 298.298	Sep 05/2017		O 298.334	Sep 05/2017	
O 298.263	Sep 05/2017		O 298.299	Sep 05/2017		O 298.335	Sep 05/2017	
O 298.264	Sep 05/2017		O 298.300	Sep 05/2017		O 298.336	Sep 05/2017	
O 298.265	Sep 05/2017		O 298.301	Sep 05/2017		O 298.337	Sep 05/2017	
O 298.266	Sep 05/2017		O 298.302	Sep 05/2017		O 298.338	Sep 05/2017	
O 298.267	Sep 05/2017		O 298.303	Sep 05/2017		O 298.339	Sep 05/2017	
O 298.268	Sep 05/2017		O 298.304	Sep 05/2017		O 298.340	Sep 05/2017	
O 298.269	Sep 05/2017		O 298.305	Sep 05/2017		O 298.341	Sep 05/2017	
O 298.270	Sep 05/2017		O 298.306	Sep 05/2017		O 298.342	Sep 05/2017	
O 298.271	Sep 05/2017		O 298.307	Sep 05/2017		O 298.343	Sep 05/2017	
O 298.272	Sep 05/2017		O 298.308	Sep 05/2017		O 298.344	Sep 05/2017	
O 298.273	Sep 05/2017		O 298.309	Sep 05/2017		O 298.345	Sep 05/2017	
O 298.274	Sep 05/2017		O 298.310	Sep 05/2017		O 298.346	Sep 05/2017	
O 298.275	Sep 05/2017		O 298.311	Sep 05/2017		O 298.347	Sep 05/2017	
O 298.276	Sep 05/2017		O 298.312	Sep 05/2017		O 298.348	Sep 05/2017	
O 298.277	Sep 05/2017		O 298.313	Sep 05/2017		O 298.349	Sep 05/2017	
O 298.278	Sep 05/2017		O 298.314	Sep 05/2017		O 298.350	Sep 05/2017	
O 298.279	Sep 05/2017		O 298.315	Sep 05/2017		O 298.351	Sep 05/2017	
O 298.280	Sep 05/2017		O 298.316	Sep 05/2017		O 298.352	Sep 05/2017	
O 298.281	Sep 05/2017		O 298.317	Sep 05/2017		O 298.353	Sep 05/2017	
O 298.282	Sep 05/2017		O 298.318	Sep 05/2017		O 298.354	Sep 05/2017	
R 298.283	Sep 05/2017		O 298.319	Sep 05/2017		O 298.355	Sep 05/2017	
R 298.284	Sep 05/2017		O 298.320	Sep 05/2017		O 298.356	Sep 05/2017	
R 298.285	Sep 05/2017		O 298.321	Sep 05/2017		O 298.357	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-02 TASKS (cont)			27-02 TASKS (cont)			27-02 TASKS (cont)		
O 298.358	Sep 05/2017		O 298.394	Sep 05/2017		O 298.430	Sep 05/2017	
O 298.359	Sep 05/2017		O 298.395	Sep 05/2017		O 298.431	Sep 05/2017	
O 298.360	Sep 05/2017		O 298.396	Sep 05/2017		O 298.432	Sep 05/2017	
O 298.361	Sep 05/2017		O 298.397	Sep 05/2017		O 298.433	Sep 05/2017	
O 298.362	Sep 05/2017		O 298.398	Sep 05/2017		O 298.434	Sep 05/2017	
O 298.363	Sep 05/2017		O 298.399	Sep 05/2017		O 298.435	Sep 05/2017	
O 298.364	Sep 05/2017		O 298.400	Sep 05/2017		O 298.436	Sep 05/2017	
O 298.365	Sep 05/2017		O 298.401	Sep 05/2017		O 298.437	Sep 05/2017	
O 298.366	Sep 05/2017		O 298.402	Sep 05/2017		O 298.438	Sep 05/2017	
O 298.367	Sep 05/2017		O 298.403	Sep 05/2017		O 298.439	Sep 05/2017	
O 298.368	Sep 05/2017		O 298.404	Sep 05/2017		O 298.440	Sep 05/2017	
O 298.369	Sep 05/2017		O 298.405	Sep 05/2017		O 298.441	Sep 05/2017	
O 298.370	Sep 05/2017		O 298.406	Sep 05/2017		O 298.442	Sep 05/2017	
O 298.371	Sep 05/2017		O 298.407	Sep 05/2017		O 298.443	Sep 05/2017	
O 298.372	Sep 05/2017		O 298.408	Sep 05/2017		O 298.444	Sep 05/2017	
O 298.373	Sep 05/2017		O 298.409	Sep 05/2017		O 298.445	Sep 05/2017	
O 298.374	Sep 05/2017		O 298.410	Sep 05/2017		O 298.446	Sep 05/2017	
O 298.375	Sep 05/2017		O 298.411	Sep 05/2017		O 298.447	Sep 05/2017	
O 298.376	Sep 05/2017		O 298.412	Sep 05/2017		O 298.448	Sep 05/2017	
O 298.377	Sep 05/2017		O 298.413	Sep 05/2017		O 298.449	Sep 05/2017	
O 298.378	Sep 05/2017		O 298.414	Sep 05/2017		O 298.450	Sep 05/2017	
O 298.379	Sep 05/2017		O 298.415	Sep 05/2017		O 298.451	Sep 05/2017	
O 298.380	Sep 05/2017		R 298.416	Sep 05/2017		O 298.452	Sep 05/2017	
O 298.381	Sep 05/2017		O 298.417	Sep 05/2017		O 298.453	Sep 05/2017	
O 298.382	Sep 05/2017		O 298.418	Sep 05/2017		O 298.454	Sep 05/2017	
O 298.383	Sep 05/2017		O 298.419	Sep 05/2017		O 298.455	Sep 05/2017	
O 298.384	Sep 05/2017		O 298.420	Sep 05/2017		O 298.456	Sep 05/2017	
O 298.385	Sep 05/2017		O 298.421	Sep 05/2017		O 298.457	Sep 05/2017	
O 298.386	Sep 05/2017		O 298.422	Sep 05/2017		O 298.458	Sep 05/2017	
O 298.387	Sep 05/2017		O 298.423	Sep 05/2017		O 298.459	Sep 05/2017	
O 298.388	Sep 05/2017		O 298.424	Sep 05/2017		O 298.460	Sep 05/2017	
O 298.389	Sep 05/2017		O 298.425	Sep 05/2017		R 298.461	Sep 05/2017	
O 298.390	Sep 05/2017		O 298.426	Sep 05/2017		O 298.462	Sep 05/2017	
O 298.391	Sep 05/2017		O 298.427	Sep 05/2017		R 298.463	Sep 05/2017	
O 298.392	Sep 05/2017		O 298.428	Sep 05/2017		O 298.464	Sep 05/2017	
O 298.393	Sep 05/2017		O 298.429	Sep 05/2017		O 298.465	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-02 TASKS (cont)			27-11 TASKS (cont)			27-11 TASKS (cont)		
O 298.466	Sep 05/2017		221	Sep 05/2016		257	Sep 05/2016	
O 298.467	Sep 05/2017		222	Sep 05/2016		258	Sep 05/2016	
O 298.468	Sep 05/2017		223	Sep 05/2016		259	Sep 05/2016	
O 298.469	Sep 05/2017		224	Sep 05/2016		260	Sep 05/2016	
O 298.470	Sep 05/2017		225	Sep 05/2016		261	Sep 05/2016	
O 298.471	Sep 05/2017		226	Sep 05/2016		262	Sep 05/2016	
O 298.472	Sep 05/2017		227	Sep 05/2016		263	Sep 05/2016	
O 298.473	Sep 05/2017		228	Sep 05/2016		264	Sep 05/2016	
O 298.474	Sep 05/2017		229	Sep 05/2016		265	Sep 05/2016	
O 298.475	Sep 05/2017		230	Sep 05/2016		266	Sep 05/2016	
O 298.476	Sep 05/2017		231	Sep 05/2016		267	Sep 05/2016	
A 298.477	Sep 05/2017		232	Sep 05/2016		268	Sep 05/2016	
A 298.478	Sep 05/2017		233	Sep 05/2016		269	Sep 05/2016	
A 298.479	Sep 05/2017		234	Sep 05/2016		270	Sep 05/2016	
A 298.480	Sep 05/2017		235	Sep 05/2016		271	Sep 05/2016	
27-11 TASKS			236	Sep 05/2016		272	Sep 05/2016	
201	Jan 05/2013		237	Sep 05/2016		273	Sep 05/2016	
202	May 05/2014		238	Sep 05/2016		274	Sep 05/2016	
203	Sep 05/2016		239	Sep 05/2016		275	Sep 05/2016	
204	Sep 05/2016		240	Sep 05/2016		276	Sep 05/2016	
205	Sep 05/2016		241	Sep 05/2016		277	Sep 05/2016	
206	Sep 05/2016		242	Sep 05/2016		278	Sep 05/2016	
207	Sep 05/2016		243	Sep 05/2016		279	Sep 05/2016	
208	May 05/2014		244	Sep 05/2016		280	Sep 05/2016	
209	May 05/2014		245	Sep 05/2016		281	Sep 05/2016	
O 210	Sep 05/2017		246	Sep 05/2016		282	Sep 05/2016	
O 211	Sep 05/2017		247	Sep 05/2016		283	Sep 05/2016	
O 212	Sep 05/2017		248	Sep 05/2016		284	Sep 05/2016	
213	Sep 05/2016		249	Sep 05/2016		285	Sep 05/2016	
214	May 05/2014		250	Sep 05/2016		286	Sep 05/2016	
215	Sep 05/2016		251	Sep 05/2016		287	Sep 05/2016	
216	Sep 05/2016		252	Sep 05/2016		288	Sep 05/2016	
217	Sep 05/2016		253	Sep 05/2016		289	Sep 05/2016	
218	Sep 05/2016		254	Sep 05/2016		290	Sep 05/2016	
219	Sep 05/2016		255	Sep 05/2016		291	Sep 05/2016	
220	Sep 05/2016		256	Sep 05/2016		292	Sep 05/2016	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-11 TASKS (cont)			27-11 TASKS (cont)			27-11 TASKS (cont)		
293	Sep 05/2016		298.31	Sep 05/2016		298.67	Sep 05/2016	
294	Sep 05/2016		298.32	Sep 05/2016		298.68	Sep 05/2016	
295	Sep 05/2016		298.33	Sep 05/2016		298.69	Sep 05/2016	
296	Sep 05/2016		298.34	Sep 05/2016		298.70	Sep 05/2016	
297	Sep 05/2016		298.35	Sep 05/2016		298.71	Sep 05/2016	
298	Sep 05/2016		298.36	Sep 05/2016		298.72	Sep 05/2016	
298.1	Sep 05/2016		298.37	Sep 05/2016		298.73	Sep 05/2016	
298.2	Sep 05/2016		298.38	Sep 05/2016		298.74	Sep 05/2016	
298.3	Sep 05/2016		298.39	Sep 05/2016		298.75	Sep 05/2016	
298.4	Sep 05/2016		298.40	Sep 05/2016		298.76	Sep 05/2016	
298.5	Sep 05/2016		298.41	Sep 05/2016		298.77	Sep 05/2016	
298.6	Sep 05/2016		298.42	Sep 05/2016		298.78	Sep 05/2016	
298.7	Sep 05/2016		298.43	Sep 05/2016		298.79	Sep 05/2016	
298.8	Sep 05/2016		298.44	Sep 05/2016		298.80	Sep 05/2016	
298.9	Sep 05/2016		298.45	Sep 05/2016		298.81	Sep 05/2016	
298.10	Sep 05/2016		298.46	Sep 05/2016		298.82	Sep 05/2016	
298.11	Sep 05/2016		298.47	Sep 05/2016		298.83	Sep 05/2016	
298.12	Sep 05/2016		298.48	Sep 05/2016		298.84	Sep 05/2016	
298.13	Sep 05/2016		298.49	Sep 05/2016		298.85	Sep 05/2016	
298.14	Sep 05/2016		298.50	Sep 05/2016		298.86	Sep 05/2016	
298.15	Sep 05/2016		298.51	Sep 05/2016		298.87	Sep 05/2016	
298.16	Sep 05/2016		298.52	Sep 05/2016		298.88	Sep 05/2016	
298.17	Sep 05/2016		298.53	Sep 05/2016		298.89	Sep 05/2016	
298.18	Sep 05/2016		298.54	Sep 05/2016		298.90	Sep 05/2016	
298.19	Sep 05/2016		298.55	Sep 05/2016		298.91	Sep 05/2016	
298.20	Sep 05/2016		298.56	Sep 05/2016		298.92	Sep 05/2016	
298.21	Sep 05/2016		298.57	Sep 05/2016		298.93	Sep 05/2016	
298.22	Sep 05/2016		298.58	Sep 05/2016		298.94	Sep 05/2016	
298.23	Sep 05/2016		298.59	Sep 05/2016		298.95	Sep 05/2016	
298.24	Sep 05/2016		298.60	Sep 05/2016		298.96	Sep 05/2016	
298.25	Sep 05/2016		298.61	Sep 05/2016		298.97	Sep 05/2016	
298.26	Sep 05/2016		298.62	Sep 05/2016		298.98	Sep 05/2016	
298.27	Sep 05/2016		298.63	Sep 05/2016		298.99	Sep 05/2016	
298.28	Sep 05/2016		298.64	Sep 05/2016		298.100	Sep 05/2016	
298.29	Sep 05/2016		298.65	Sep 05/2016		298.101	Sep 05/2016	
298.30	Sep 05/2016		298.66	Sep 05/2016		298.102	Sep 05/2016	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-11 TASKS (cont)			27-11 TASKS (cont)			27-21 TASKS (cont)		
298.103	Sep 05/2016		298.139	Sep 05/2016		O 210	Sep 05/2017	
298.104	Sep 05/2016		298.140	Sep 05/2016		O 211	Sep 05/2017	
298.105	Sep 05/2016		298.141	Sep 05/2016		212	Sep 05/2016	
298.106	Sep 05/2016		298.142	Sep 05/2016		213	Sep 05/2016	
298.107	Sep 05/2016		298.143	Sep 05/2016		214	Sep 05/2016	
298.108	Sep 05/2016		298.144	Sep 05/2016		215	Sep 05/2016	
298.109	Sep 05/2016		298.145	Sep 05/2016		216	Sep 05/2016	
298.110	Sep 05/2016		298.146	Sep 05/2016		217	Sep 05/2016	
298.111	Sep 05/2016		298.147	Sep 05/2016		218	Sep 05/2016	
298.112	Sep 05/2016		298.148	Sep 05/2016		219	Sep 05/2016	
298.113	Sep 05/2016		298.149	Sep 05/2016		220	Sep 05/2016	
298.114	Sep 05/2016		298.150	Sep 05/2016		221	Sep 05/2016	
298.115	Sep 05/2016		298.151	Sep 05/2016		222	Sep 05/2016	
298.116	Sep 05/2016		298.152	Sep 05/2016		223	Sep 05/2016	
298.117	Sep 05/2016		298.153	Sep 05/2016		224	Sep 05/2016	
298.118	Sep 05/2016		298.154	Sep 05/2016		225	Sep 05/2016	
298.119	Sep 05/2016		298.155	Sep 05/2016		226	Sep 05/2016	
298.120	Sep 05/2016		298.156	Sep 05/2016		227	Sep 05/2016	
298.121	Sep 05/2016		298.157	Sep 05/2016		228	May 05/2017	
298.122	Sep 05/2016		298.158	Sep 05/2016		229	May 05/2017	
298.123	Sep 05/2016		298.159	Sep 05/2016		230	May 05/2017	
298.124	Sep 05/2016		298.160	Sep 05/2016		231	May 05/2017	
298.125	Sep 05/2016		298.161	Sep 05/2016		232	May 05/2017	
298.126	Sep 05/2016		298.162	Sep 05/2016		233	May 05/2017	
298.127	Sep 05/2016		298.163	Sep 05/2016		234	May 05/2017	
298.128	Sep 05/2016		298.164	Sep 05/2016		235	Sep 05/2016	
298.129	Sep 05/2016		27-21 TASKS			236	Sep 05/2016	
298.130	Sep 05/2016		201	May 05/2013		237	Sep 05/2016	
298.131	Sep 05/2016		202	May 05/2014		238	Sep 05/2016	
298.132	Sep 05/2016		203	May 05/2014		239	Sep 05/2016	
298.133	Sep 05/2016		204	Sep 05/2016		240	Sep 05/2016	
298.134	Sep 05/2016		205	Sep 05/2016		241	Sep 05/2016	
O 298.135	Sep 05/2017		206	Sep 05/2016		242	Sep 05/2016	
298.136	Sep 05/2016		207	Sep 05/2016		243	Sep 05/2016	
O 298.137	Sep 05/2017		O 208	Sep 05/2017		244	Sep 05/2016	
298.138	Sep 05/2016		O 209	Sep 05/2017		245	Sep 05/2016	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-21 TASKS (cont)			27-21 TASKS (cont)			27-21 TASKS (cont)		
246	Sep 05/2016		282	May 05/2017		298.20	Sep 05/2016	
247	Sep 05/2016		283	May 05/2017		298.21	Sep 05/2016	
248	Sep 05/2016		284	May 05/2017		298.22	Sep 05/2016	
249	Sep 05/2016		285	Sep 05/2016		298.23	Sep 05/2016	
250	Sep 05/2016		286	Sep 05/2016		298.24	Sep 05/2016	
251	Sep 05/2016		287	Sep 05/2016		298.25	Sep 05/2016	
252	Sep 05/2016		288	Sep 05/2016		298.26	Sep 05/2016	
253	Sep 05/2016		289	Sep 05/2016		298.27	Sep 05/2016	
254	May 05/2017		290	Sep 05/2016		298.28	Sep 05/2016	
255	May 05/2017		291	Sep 05/2016		298.29	Sep 05/2016	
256	May 05/2017		292	Sep 05/2016		298.30	Sep 05/2016	
257	May 05/2017		R 293	Sep 05/2017		298.31	Sep 05/2016	
258	May 05/2017		O 294	Sep 05/2017		298.32	Sep 05/2016	
259	May 05/2017		295	Sep 05/2016		298.33	Sep 05/2016	
260	May 05/2017		296	Sep 05/2016		298.34	Sep 05/2016	
261	May 05/2017		297	Sep 05/2016		298.35	Sep 05/2016	
262	May 05/2017		298	Sep 05/2016		298.36	Sep 05/2016	
263	May 05/2017		298.1	Sep 05/2016		298.37	Sep 05/2016	
264	May 05/2017		298.2	Sep 05/2016		298.38	Sep 05/2016	
265	May 05/2017		298.3	Sep 05/2016		298.39	Sep 05/2016	
266	May 05/2017		298.4	Sep 05/2016		298.40	Sep 05/2016	
267	May 05/2017		298.5	Sep 05/2016		298.41	Sep 05/2016	
268	May 05/2017		298.6	Sep 05/2016		298.42	Sep 05/2016	
269	May 05/2017		298.7	Sep 05/2016		298.43	Sep 05/2016	
270	May 05/2017		298.8	Sep 05/2016		298.44	Sep 05/2016	
O 271	Sep 05/2017		298.9	Sep 05/2016		298.45	Sep 05/2016	
O 272	Sep 05/2017		298.10	Sep 05/2016		298.46	Sep 05/2016	
273	May 05/2017		298.11	Sep 05/2016		298.47	Sep 05/2016	
274	May 05/2017		298.12	Sep 05/2016		298.48	Sep 05/2016	
275	May 05/2017		298.13	Sep 05/2016		298.49	Sep 05/2016	
276	May 05/2017		298.14	Sep 05/2016		298.50	Sep 05/2016	
277	May 05/2017		298.15	Sep 05/2016		298.51	Sep 05/2016	
278	May 05/2017		298.16	Sep 05/2016		298.52	Sep 05/2016	
279	May 05/2017		298.17	Sep 05/2016		298.53	Sep 05/2016	
280	May 05/2017		298.18	Sep 05/2016		298.54	Sep 05/2016	
281	May 05/2017		298.19	Sep 05/2016		298.55	Sep 05/2016	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-21 TASKS (cont)			27-31 TASKS (cont)			27-31 TASKS (cont)		
298.56	Sep 05/2016		211	Sep 05/2016		247	Sep 05/2016	
298.57	Sep 05/2016		212	Sep 05/2016		248	Sep 05/2016	
298.58	Sep 05/2016		213	Sep 05/2016		249	Sep 05/2016	
298.59	Sep 05/2016		214	Sep 05/2016		250	Sep 05/2016	
298.60	Sep 05/2016		215	Sep 05/2016		251	Sep 05/2016	
298.61	Sep 05/2016		216	Sep 05/2016		252	Sep 05/2016	
298.62	Sep 05/2016		217	Sep 05/2016		253	Sep 05/2016	
298.63	Sep 05/2016		218	Sep 05/2016		254	Sep 05/2016	
298.64	Sep 05/2016		219	Sep 05/2016		255	Sep 05/2016	
298.65	Sep 05/2016		220	Sep 05/2016		256	Sep 05/2016	
298.66	Sep 05/2016		221	Sep 05/2016		257	Sep 05/2016	
298.67	Sep 05/2016		222	Sep 05/2016		258	Sep 05/2016	
298.68	Sep 05/2016		223	Sep 05/2016		259	Sep 05/2016	
298.69	Sep 05/2016		224	Sep 05/2016		260	Sep 05/2016	
298.70	Jan 05/2017		225	Sep 05/2016		261	Sep 05/2016	
298.71	Jan 05/2017		226	Sep 05/2016		262	Sep 05/2016	
298.72	Jan 05/2017		227	Sep 05/2016		263	Sep 05/2016	
298.73	Jan 05/2017		228	Sep 05/2016		264	Sep 05/2016	
298.74	Jan 05/2017		229	Sep 05/2016		265	Sep 05/2016	
298.75	Jan 05/2017		230	Sep 05/2016		266	Sep 05/2016	
298.76	Jan 05/2017		231	Sep 05/2016		267	Sep 05/2016	
298.77	Jan 05/2017		232	Sep 05/2016		268	Sep 05/2016	
298.78	Jan 05/2017		233	Sep 05/2016		269	Sep 05/2016	
298.79	Jan 05/2017		234	Sep 05/2016		270	Sep 05/2016	
298.80	BLANK		235	Sep 05/2016		271	Sep 05/2016	
27-31 TASKS			236	Sep 05/2016		272	Sep 05/2016	
201	Sep 05/2016		237	Sep 05/2016		273	Sep 05/2016	
202	Sep 05/2016		238	Sep 05/2016		274	Sep 05/2016	
203	Sep 05/2016		239	Sep 05/2016		275	Sep 05/2016	
O 204	Sep 05/2017		240	Sep 05/2016		276	Sep 05/2016	
O 205	Sep 05/2017		241	Sep 05/2016		277	Sep 05/2016	
O 206	Sep 05/2017		242	Sep 05/2016		278	Sep 05/2016	
O 207	Sep 05/2017		243	Sep 05/2016		279	Sep 05/2016	
O 208	Sep 05/2017		244	Sep 05/2016		280	Sep 05/2016	
209	Sep 05/2016		245	Sep 05/2016		281	Sep 05/2016	
210	Sep 05/2014		246	Sep 05/2016		282	Sep 05/2016	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-31 TASKS (cont)			27-31 TASKS (cont)			27-31 TASKS (cont)		
283	Sep 05/2016		298.21	Sep 05/2016		298.57	Sep 05/2016	
284	Sep 05/2016		298.22	Sep 05/2016		298.58	Sep 05/2016	
285	Sep 05/2016		298.23	Sep 05/2016		298.59	Sep 05/2016	
286	Sep 05/2016		298.24	Sep 05/2016		298.60	Sep 05/2016	
287	Sep 05/2016		298.25	Sep 05/2016		298.61	Sep 05/2016	
288	Sep 05/2016		298.26	Sep 05/2016		298.62	Sep 05/2016	
289	Sep 05/2016		298.27	Sep 05/2016		298.63	Sep 05/2016	
290	Sep 05/2016		298.28	Sep 05/2016		298.64	Sep 05/2016	
291	Sep 05/2016		298.29	Sep 05/2016		298.65	Sep 05/2016	
292	Sep 05/2016		298.30	Sep 05/2016		298.66	Sep 05/2016	
293	Sep 05/2016		298.31	Sep 05/2016		298.67	Sep 05/2016	
294	Sep 05/2016		298.32	Sep 05/2016		298.68	Sep 05/2016	
295	Sep 05/2016		298.33	Sep 05/2016		298.69	Sep 05/2016	
296	Sep 05/2016		298.34	Sep 05/2016		298.70	Sep 05/2016	
297	Sep 05/2016		298.35	Sep 05/2016		298.71	Sep 05/2016	
298	Sep 05/2016		298.36	Sep 05/2016		298.72	Sep 05/2016	
298.1	Sep 05/2016		298.37	Sep 05/2016		298.73	Sep 05/2016	
298.2	Sep 05/2016		298.38	Sep 05/2016		298.74	Sep 05/2016	
298.3	Sep 05/2016		298.39	Sep 05/2016		298.75	Sep 05/2016	
298.4	Sep 05/2016		298.40	Sep 05/2016		298.76	Sep 05/2016	
298.5	Sep 05/2016		298.41	Sep 05/2016		298.77	Sep 05/2016	
298.6	Sep 05/2016		298.42	Sep 05/2016		298.78	Sep 05/2016	
298.7	Sep 05/2016		298.43	Sep 05/2016		298.79	Sep 05/2016	
298.8	Sep 05/2016		298.44	Sep 05/2016		298.80	Sep 05/2016	
298.9	Sep 05/2016		298.45	Sep 05/2016		298.81	Sep 05/2016	
298.10	Sep 05/2016		298.46	Sep 05/2016		298.82	Sep 05/2016	
298.11	Sep 05/2016		298.47	Sep 05/2016		298.83	Sep 05/2016	
298.12	Sep 05/2016		298.48	Sep 05/2016		298.84	Sep 05/2016	
298.13	Sep 05/2016		298.49	Sep 05/2016		298.85	Sep 05/2016	
298.14	Sep 05/2016		298.50	Sep 05/2016		298.86	Sep 05/2016	
298.15	Sep 05/2016		298.51	Sep 05/2016		298.87	Sep 05/2016	
298.16	Sep 05/2016		298.52	Sep 05/2016		298.88	Sep 05/2016	
298.17	Sep 05/2016		298.53	Sep 05/2016		298.89	Sep 05/2016	
298.18	Sep 05/2016		298.54	Sep 05/2016		298.90	Sep 05/2016	
298.19	Sep 05/2016		298.55	Sep 05/2016		298.91	Sep 05/2016	
298.20	Sep 05/2016		298.56	Sep 05/2016		298.92	Sep 05/2016	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-31 TASKS (cont)			27-31 TASKS (cont)			27-31 TASKS (cont)		
298.93	Sep 05/2016		298.129	Sep 05/2016		O 298.165	Sep 05/2017	
298.94	Sep 05/2016		298.130	Sep 05/2016		O 298.166	Sep 05/2017	
298.95	Sep 05/2016		298.131	Sep 05/2016		O 298.167	Sep 05/2017	
298.96	Sep 05/2016		298.132	Sep 05/2016		O 298.168	Sep 05/2017	
298.97	Sep 05/2016		298.133	Sep 05/2016		O 298.169	Sep 05/2017	
298.98	Sep 05/2016		298.134	Sep 05/2016		O 298.170	Sep 05/2017	
298.99	Sep 05/2016		298.135	Sep 05/2016		O 298.171	Sep 05/2017	
298.100	Sep 05/2016		298.136	Sep 05/2016		O 298.172	Sep 05/2017	
298.101	Sep 05/2016		298.137	Sep 05/2016		O 298.173	Sep 05/2017	
298.102	Sep 05/2016		298.138	Sep 05/2016		O 298.174	Sep 05/2017	
298.103	Sep 05/2016		O 298.139	Sep 05/2017		O 298.175	Sep 05/2017	
298.104	Sep 05/2016		O 298.140	Sep 05/2017		O 298.176	Sep 05/2017	
298.105	Sep 05/2016		O 298.141	Sep 05/2017		O 298.177	Sep 05/2017	
298.106	Sep 05/2016		O 298.142	Sep 05/2017		O 298.178	Sep 05/2017	
298.107	Sep 05/2016		O 298.143	Sep 05/2017		O 298.179	Sep 05/2017	
298.108	Sep 05/2016		O 298.144	Sep 05/2017		O 298.180	Sep 05/2017	
298.109	Sep 05/2016		O 298.145	Sep 05/2017		O 298.181	Sep 05/2017	
298.110	Sep 05/2016		O 298.146	Sep 05/2017		O 298.182	Sep 05/2017	
298.111	Sep 05/2016		O 298.147	Sep 05/2017		O 298.183	Sep 05/2017	
298.112	Sep 05/2016		O 298.148	Sep 05/2017		O 298.184	Sep 05/2017	
298.113	Sep 05/2016		O 298.149	Sep 05/2017		O 298.185	Sep 05/2017	
298.114	Sep 05/2016		O 298.150	Sep 05/2017		O 298.186	Sep 05/2017	
298.115	Sep 05/2016		O 298.151	Sep 05/2017		O 298.187	Sep 05/2017	
298.116	Sep 05/2016		O 298.152	Sep 05/2017		O 298.188	Sep 05/2017	
298.117	Sep 05/2016		O 298.153	Sep 05/2017		O 298.189	Sep 05/2017	
298.118	Sep 05/2016		O 298.154	Sep 05/2017		O 298.190	Sep 05/2017	
298.119	Sep 05/2016		O 298.155	Sep 05/2017		O 298.191	Sep 05/2017	
298.120	Sep 05/2016		O 298.156	Sep 05/2017		O 298.192	Sep 05/2017	
298.121	Sep 05/2016		O 298.157	Sep 05/2017		O 298.193	Sep 05/2017	
298.122	Sep 05/2016		O 298.158	Sep 05/2017		O 298.194	Sep 05/2017	
298.123	Sep 05/2016		O 298.159	Sep 05/2017		A 298.195	Sep 05/2017	
298.124	Sep 05/2016		O 298.160	Sep 05/2017		A 298.196	BLANK	
298.125	Sep 05/2016		O 298.161	Sep 05/2017		27-41 TASKS		
298.126	Sep 05/2016		O 298.162	Sep 05/2017		201	May 05/2016	
298.127	Sep 05/2016		O 298.163	Sep 05/2017		202	May 05/2016	
298.128	Sep 05/2016		O 298.164	Sep 05/2017		203	Sep 05/2016	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-41 TASKS (cont)			27-41 TASKS (cont)			27-41 TASKS (cont)		
204	Sep 05/2016		O 240	Sep 05/2017		276	Sep 05/2016	
205	Sep 05/2016		O 241	Sep 05/2017		277	Sep 05/2016	
206	Sep 05/2016		O 242	Sep 05/2017		278	Sep 05/2016	
207	Sep 05/2016		O 243	Sep 05/2017		279	Sep 05/2016	
208	Sep 05/2016		O 244	Sep 05/2017		280	Sep 05/2016	
209	May 05/2016		O 245	Sep 05/2017		281	Sep 05/2016	
210	May 05/2016		246	Sep 05/2016		282	Sep 05/2016	
211	May 05/2016		247	Sep 05/2016		283	Sep 05/2016	
212	May 05/2016		248	Sep 05/2016		284	Sep 05/2016	
213	May 05/2016		249	Sep 05/2016		285	Sep 05/2016	
214	May 05/2016		250	Sep 05/2016		286	Sep 05/2016	
215	Sep 05/2016		251	Sep 05/2016		287	Sep 05/2016	
216	Sep 05/2016		252	Sep 05/2016		288	Sep 05/2016	
217	Sep 05/2016		253	Sep 05/2016		289	Sep 05/2016	
218	Sep 05/2016		254	Sep 05/2016		290	Sep 05/2016	
219	Sep 05/2016		255	Sep 05/2016		291	Sep 05/2016	
220	Sep 05/2016		256	Sep 05/2016		292	Sep 05/2016	
221	Sep 05/2016		257	Sep 05/2016		293	Sep 05/2016	
222	Sep 05/2016		258	Sep 05/2016		294	Sep 05/2016	
223	Sep 05/2016		259	Sep 05/2016		295	Sep 05/2016	
224	Sep 05/2016		260	Sep 05/2016		296	Sep 05/2016	
225	Sep 05/2016		261	Sep 05/2016		297	Sep 05/2016	
226	Sep 05/2016		262	Sep 05/2016		298	Sep 05/2016	
227	Sep 05/2016		263	Sep 05/2016		298.1	Sep 05/2016	
228	Sep 05/2016		264	Sep 05/2016		298.2	Sep 05/2016	
229	Sep 05/2016		265	Sep 05/2016		298.3	Sep 05/2016	
230	Sep 05/2016		R 266	Sep 05/2017		298.4	Sep 05/2016	
231	Sep 05/2016		267	Sep 05/2016		298.5	Sep 05/2016	
232	Sep 05/2016		268	Sep 05/2016		O 298.6	Sep 05/2017	
233	Sep 05/2016		269	Sep 05/2016		298.7	Sep 05/2016	
234	Sep 05/2016		270	Sep 05/2016		298.8	Sep 05/2016	
235	Sep 05/2016		271	Sep 05/2016		298.9	Sep 05/2016	
236	Sep 05/2016		272	Sep 05/2016		298.10	Sep 05/2016	
O 237	Sep 05/2017		273	Sep 05/2016		298.11	Sep 05/2016	
O 238	Sep 05/2017		274	Sep 05/2016		298.12	Sep 05/2016	
O 239	Sep 05/2017		275	Sep 05/2016		298.13	Sep 05/2016	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-41 TASKS (cont)			27-41 TASKS (cont)			27-51 TASKS (cont)		
298.14	Sep 05/2016		298.50	Sep 05/2016		O 223	Sep 05/2017	
298.15	Sep 05/2016		298.51	Sep 05/2016		O 224	Sep 05/2017	
298.16	Sep 05/2016		298.52	Sep 05/2016		O 225	Sep 05/2017	
298.17	Sep 05/2016		298.53	Sep 05/2016		O 226	Sep 05/2017	
298.18	Sep 05/2016		298.54	Sep 05/2016		O 227	Sep 05/2017	
298.19	Sep 05/2016		298.55	Sep 05/2016		O 228	Sep 05/2017	
298.20	Sep 05/2016		298.56	Sep 05/2016		O 229	Sep 05/2017	
298.21	Sep 05/2016		298.57	Sep 05/2016		O 230	Sep 05/2017	
298.22	Sep 05/2016		298.58	Sep 05/2016		O 231	Sep 05/2017	
298.23	Sep 05/2016		298.59	Sep 05/2016		O 232	Sep 05/2017	
298.24	Sep 05/2016		298.60	Sep 05/2016		O 233	Sep 05/2017	
298.25	Sep 05/2016		298.61	Sep 05/2016		O 234	Sep 05/2017	
298.26	Sep 05/2016		298.62	Sep 05/2016		O 235	Sep 05/2017	
298.27	Sep 05/2016		27-51 TASKS			O 236	Sep 05/2017	
298.28	Sep 05/2016		O 201	Sep 05/2017		O 237	Sep 05/2017	
298.29	Sep 05/2016		O 202	Sep 05/2017		O 238	Sep 05/2017	
298.30	Sep 05/2016		O 203	Sep 05/2017		O 239	Sep 05/2017	
298.31	Sep 05/2016		O 204	Sep 05/2017		O 240	Sep 05/2017	
298.32	Sep 05/2016		O 205	Sep 05/2017		O 241	Sep 05/2017	
298.33	Sep 05/2016		O 206	Sep 05/2017		O 242	Sep 05/2017	
298.34	Sep 05/2016		O 207	Sep 05/2017		O 243	Sep 05/2017	
298.35	Sep 05/2016		O 208	Sep 05/2017		O 244	Sep 05/2017	
298.36	Sep 05/2016		O 209	Sep 05/2017		O 245	Sep 05/2017	
298.37	Sep 05/2016		210	Jan 05/2017		O 246	Sep 05/2017	
298.38	Sep 05/2016		O 211	Sep 05/2017		O 247	Sep 05/2017	
298.39	Sep 05/2016		O 212	Sep 05/2017		O 248	Sep 05/2017	
298.40	Sep 05/2016		O 213	Sep 05/2017		O 249	Sep 05/2017	
298.41	Sep 05/2016		214	Jan 05/2017		O 250	Sep 05/2017	
298.42	Sep 05/2016		O 215	Sep 05/2017		O 251	Sep 05/2017	
298.43	Sep 05/2016		O 216	Sep 05/2017		O 252	Sep 05/2017	
298.44	Sep 05/2016		O 217	Sep 05/2017		O 253	Sep 05/2017	
298.45	Sep 05/2016		O 218	Sep 05/2017		O 254	Sep 05/2017	
298.46	Sep 05/2016		O 219	Sep 05/2017		R 255	Sep 05/2017	
298.47	Sep 05/2016		O 220	Sep 05/2017		R 256	Sep 05/2017	
298.48	Sep 05/2016		O 221	Sep 05/2017		O 257	Sep 05/2017	
298.49	Sep 05/2016		O 222	Sep 05/2017		O 258	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-51 TASKS (cont)			27-51 TASKS (cont)			27-51 TASKS (cont)		
O 259	Sep 05/2017		O 295	Sep 05/2017		O 298.33	Sep 05/2017	
O 260	Sep 05/2017		O 296	Sep 05/2017		O 298.34	Sep 05/2017	
O 261	Sep 05/2017		O 297	Sep 05/2017		O 298.35	Sep 05/2017	
O 262	Sep 05/2017		O 298	Sep 05/2017		O 298.36	Sep 05/2017	
O 263	Sep 05/2017		O 298.1	Sep 05/2017		O 298.37	Sep 05/2017	
O 264	Sep 05/2017		O 298.2	Sep 05/2017		O 298.38	Sep 05/2017	
O 265	Sep 05/2017		O 298.3	Sep 05/2017		O 298.39	Sep 05/2017	
O 266	Sep 05/2017		O 298.4	Sep 05/2017		O 298.40	Sep 05/2017	
O 267	Sep 05/2017		O 298.5	Sep 05/2017		O 298.41	Sep 05/2017	
O 268	Sep 05/2017		O 298.6	Sep 05/2017		O 298.42	Sep 05/2017	
O 269	Sep 05/2017		O 298.7	Sep 05/2017		O 298.43	Sep 05/2017	
O 270	Sep 05/2017		O 298.8	Sep 05/2017		O 298.44	Sep 05/2017	
O 271	Sep 05/2017		O 298.9	Sep 05/2017		O 298.45	Sep 05/2017	
O 272	Sep 05/2017		O 298.10	Sep 05/2017		O 298.46	Sep 05/2017	
O 273	Sep 05/2017		O 298.11	Sep 05/2017		O 298.47	Sep 05/2017	
O 274	Sep 05/2017		O 298.12	Sep 05/2017		O 298.48	Sep 05/2017	
O 275	Sep 05/2017		O 298.13	Sep 05/2017		O 298.49	Sep 05/2017	
O 276	Sep 05/2017		O 298.14	Sep 05/2017		O 298.50	Sep 05/2017	
O 277	Sep 05/2017		O 298.15	Sep 05/2017		O 298.51	Sep 05/2017	
O 278	Sep 05/2017		O 298.16	Sep 05/2017		O 298.52	Sep 05/2017	
O 279	Sep 05/2017		O 298.17	Sep 05/2017		O 298.53	Sep 05/2017	
O 280	Sep 05/2017		O 298.18	Sep 05/2017		O 298.54	Sep 05/2017	
O 281	Sep 05/2017		O 298.19	Sep 05/2017		O 298.55	Sep 05/2017	
O 282	Sep 05/2017		O 298.20	Sep 05/2017		O 298.56	Sep 05/2017	
O 283	Sep 05/2017		O 298.21	Sep 05/2017		O 298.57	Sep 05/2017	
O 284	Sep 05/2017		O 298.22	Sep 05/2017		O 298.58	Sep 05/2017	
O 285	Sep 05/2017		O 298.23	Sep 05/2017		O 298.59	Sep 05/2017	
O 286	Sep 05/2017		O 298.24	Sep 05/2017		O 298.60	Sep 05/2017	
O 287	Sep 05/2017		O 298.25	Sep 05/2017		O 298.61	Sep 05/2017	
O 288	Sep 05/2017		O 298.26	Sep 05/2017		O 298.62	Sep 05/2017	
O 289	Sep 05/2017		O 298.27	Sep 05/2017		O 298.63	Sep 05/2017	
O 290	Sep 05/2017		O 298.28	Sep 05/2017		O 298.64	Sep 05/2017	
O 291	Sep 05/2017		O 298.29	Sep 05/2017		O 298.65	Sep 05/2017	
O 292	Sep 05/2017		O 298.30	Sep 05/2017		O 298.66	Sep 05/2017	
O 293	Sep 05/2017		O 298.31	Sep 05/2017		O 298.67	Sep 05/2017	
O 294	Sep 05/2017		O 298.32	Sep 05/2017		O 298.68	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-51 TASKS (cont)			27-51 TASKS (cont)			27-52 TASKS (cont)		
O 298.69	Sep 05/2017		O 298.105	Sep 05/2017		O 214	Sep 05/2017	
O 298.70	Sep 05/2017		O 298.106	Sep 05/2017		O 215	Sep 05/2017	
O 298.71	Sep 05/2017		O 298.107	Sep 05/2017		O 216	Sep 05/2017	
O 298.72	Sep 05/2017		O 298.108	Sep 05/2017		O 217	Sep 05/2017	
O 298.73	Sep 05/2017		O 298.109	Sep 05/2017		O 218	Sep 05/2017	
O 298.74	Sep 05/2017		O 298.110	Sep 05/2017		O 219	Sep 05/2017	
O 298.75	Sep 05/2017		O 298.111	Sep 05/2017		O 220	Sep 05/2017	
O 298.76	Sep 05/2017		O 298.112	Sep 05/2017		O 221	Sep 05/2017	
O 298.77	Sep 05/2017		O 298.113	Sep 05/2017		O 222	Sep 05/2017	
O 298.78	Sep 05/2017		O 298.114	Sep 05/2017		O 223	Sep 05/2017	
O 298.79	Sep 05/2017		O 298.115	Sep 05/2017		O 224	Sep 05/2017	
O 298.80	Sep 05/2017		O 298.116	Sep 05/2017		O 225	Sep 05/2017	
O 298.81	Sep 05/2017		O 298.117	Sep 05/2017		O 226	Sep 05/2017	
O 298.82	Sep 05/2017		O 298.118	Sep 05/2017		O 227	Sep 05/2017	
O 298.83	Sep 05/2017		O 298.119	Sep 05/2017		O 228	Sep 05/2017	
O 298.84	Sep 05/2017		O 298.120	Sep 05/2017		O 229	Sep 05/2017	
O 298.85	Sep 05/2017		O 298.121	Sep 05/2017		O 230	Sep 05/2017	
O 298.86	Sep 05/2017		O 298.122	Sep 05/2017		O 231	Sep 05/2017	
O 298.87	Sep 05/2017		A 298.123	Sep 05/2017		O 232	Sep 05/2017	
O 298.88	Sep 05/2017		A 298.124	Sep 05/2017		O 233	Sep 05/2017	
O 298.89	Sep 05/2017		A 298.125	Sep 05/2017		O 234	Sep 05/2017	
O 298.90	Sep 05/2017		A 298.126	Sep 05/2017		O 235	Sep 05/2017	
O 298.91	Sep 05/2017		27-52 TASKS			O 236	Sep 05/2017	
O 298.92	Sep 05/2017		O 201	Sep 05/2017		O 237	Sep 05/2017	
O 298.93	Sep 05/2017		O 202	Sep 05/2017		O 238	Sep 05/2017	
O 298.94	Sep 05/2017		O 203	Sep 05/2017		O 239	Sep 05/2017	
O 298.95	Sep 05/2017		O 204	Sep 05/2017		R 240	Sep 05/2017	
O 298.96	Sep 05/2017		O 205	Sep 05/2017		O 241	Sep 05/2017	
O 298.97	Sep 05/2017		O 206	Sep 05/2017		O 242	Sep 05/2017	
O 298.98	Sep 05/2017		O 207	Sep 05/2017		O 243	Sep 05/2017	
O 298.99	Sep 05/2017		O 208	Sep 05/2017		O 244	Sep 05/2017	
O 298.100	Sep 05/2017		O 209	Sep 05/2017		O 245	Sep 05/2017	
O 298.101	Sep 05/2017		O 210	Sep 05/2017		O 246	Sep 05/2017	
O 298.102	Sep 05/2017		O 211	Sep 05/2017		O 247	Sep 05/2017	
O 298.103	Sep 05/2017		O 212	Sep 05/2017		O 248	Sep 05/2017	
O 298.104	Sep 05/2017		O 213	Sep 05/2017		O 249	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-52 TASKS (cont)			27-52 TASKS (cont)			27-52 TASKS (cont)		
O 250	Sep 05/2017		O 286	Sep 05/2017		O 298.24	Sep 05/2017	
R 251	Sep 05/2017		O 287	Sep 05/2017		O 298.25	Sep 05/2017	
O 252	Sep 05/2017		O 288	Sep 05/2017		O 298.26	Sep 05/2017	
O 253	Sep 05/2017		O 289	Sep 05/2017		O 298.27	Sep 05/2017	
O 254	Sep 05/2017		O 290	Sep 05/2017		O 298.28	Sep 05/2017	
O 255	Sep 05/2017		O 291	Sep 05/2017		O 298.29	Sep 05/2017	
O 256	Sep 05/2017		O 292	Sep 05/2017		O 298.30	Sep 05/2017	
O 257	Sep 05/2017		O 293	Sep 05/2017		O 298.31	Sep 05/2017	
O 258	Sep 05/2017		O 294	Sep 05/2017		O 298.32	Sep 05/2017	
O 259	Sep 05/2017		O 295	Sep 05/2017		O 298.33	Sep 05/2017	
O 260	Sep 05/2017		O 296	Sep 05/2017		O 298.34	Sep 05/2017	
O 261	Sep 05/2017		O 297	Sep 05/2017		O 298.35	Sep 05/2017	
O 262	Sep 05/2017		O 298	Sep 05/2017		O 298.36	Sep 05/2017	
O 263	Sep 05/2017		O 298.1	Sep 05/2017		O 298.37	Sep 05/2017	
O 264	Sep 05/2017		O 298.2	Sep 05/2017		O 298.38	Sep 05/2017	
O 265	Sep 05/2017		O 298.3	Sep 05/2017		O 298.39	Sep 05/2017	
O 266	Sep 05/2017		O 298.4	Sep 05/2017		O 298.40	Sep 05/2017	
O 267	Sep 05/2017		O 298.5	Sep 05/2017		O 298.41	Sep 05/2017	
O 268	Sep 05/2017		O 298.6	Sep 05/2017		O 298.42	Sep 05/2017	
O 269	Sep 05/2017		O 298.7	Sep 05/2017		O 298.43	Sep 05/2017	
O 270	Sep 05/2017		O 298.8	Sep 05/2017		O 298.44	Sep 05/2017	
O 271	Sep 05/2017		O 298.9	Sep 05/2017		O 298.45	Sep 05/2017	
O 272	Sep 05/2017		O 298.10	Sep 05/2017		O 298.46	Sep 05/2017	
O 273	Sep 05/2017		O 298.11	Sep 05/2017		O 298.47	Sep 05/2017	
O 274	Sep 05/2017		O 298.12	Sep 05/2017		O 298.48	Sep 05/2017	
O 275	Sep 05/2017		O 298.13	Sep 05/2017		O 298.49	Sep 05/2017	
O 276	Sep 05/2017		O 298.14	Sep 05/2017		O 298.50	Sep 05/2017	
O 277	Sep 05/2017		O 298.15	Sep 05/2017		O 298.51	Sep 05/2017	
O 278	Sep 05/2017		O 298.16	Sep 05/2017		O 298.52	Sep 05/2017	
O 279	Sep 05/2017		O 298.17	Sep 05/2017		O 298.53	Sep 05/2017	
O 280	Sep 05/2017		O 298.18	Sep 05/2017		O 298.54	Sep 05/2017	
O 281	Sep 05/2017		O 298.19	Sep 05/2017		O 298.55	Sep 05/2017	
O 282	Sep 05/2017		O 298.20	Sep 05/2017		O 298.56	Sep 05/2017	
O 283	Sep 05/2017		O 298.21	Sep 05/2017		O 298.57	Sep 05/2017	
O 284	Sep 05/2017		O 298.22	Sep 05/2017		O 298.58	Sep 05/2017	
O 285	Sep 05/2017		O 298.23	Sep 05/2017		O 298.59	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-52 TASKS (cont)			27-59 TASKS (cont)			27-59 TASKS (cont)		
O 298.60	Sep 05/2017		207	Sep 05/2016		O 243	Sep 05/2017	
O 298.61	Sep 05/2017		208	Sep 05/2016		O 244	Sep 05/2017	
O 298.62	Sep 05/2017		209	Sep 05/2016		O 245	Sep 05/2017	
O 298.63	Sep 05/2017		210	Sep 05/2016		O 246	Sep 05/2017	
O 298.64	Sep 05/2017		211	Sep 05/2016		O 247	Sep 05/2017	
O 298.65	Sep 05/2017		212	Sep 05/2016		O 248	Sep 05/2017	
O 298.66	Sep 05/2017		213	Sep 05/2016		O 249	Sep 05/2017	
O 298.67	Sep 05/2017		214	Sep 05/2016		O 250	Sep 05/2017	
O 298.68	Sep 05/2017		215	Sep 05/2016		O 251	Sep 05/2017	
O 298.69	Sep 05/2017		216	Sep 05/2016		O 252	Sep 05/2017	
O 298.70	Sep 05/2017		217	Sep 05/2016		O 253	Sep 05/2017	
O 298.71	Sep 05/2017		218	Sep 05/2016		O 254	Sep 05/2017	
O 298.72	Sep 05/2017		219	Sep 05/2016		O 255	Sep 05/2017	
O 298.73	Sep 05/2017		220	Sep 05/2016		O 256	Sep 05/2017	
O 298.74	Sep 05/2017		221	Sep 05/2016		O 257	Sep 05/2017	
O 298.75	Sep 05/2017		222	Sep 05/2016		O 258	Sep 05/2017	
O 298.76	Sep 05/2017		223	Sep 05/2016		O 259	Sep 05/2017	
O 298.77	Sep 05/2017		224	Sep 05/2016		O 260	Sep 05/2017	
O 298.78	Sep 05/2017		225	Sep 05/2016		O 261	Sep 05/2017	
O 298.79	Sep 05/2017		226	Sep 05/2016		O 262	Sep 05/2017	
O 298.80	Sep 05/2017		227	Sep 05/2016		O 263	Sep 05/2017	
O 298.81	Sep 05/2017		O 228	Sep 05/2017		O 264	Sep 05/2017	
O 298.82	Sep 05/2017		O 229	Sep 05/2017		O 265	Sep 05/2017	
A 298.83	Sep 05/2017		O 230	Sep 05/2017		O 266	Sep 05/2017	
A 298.84	Sep 05/2017		O 231	Sep 05/2017		O 267	Sep 05/2017	
A 298.85	Sep 05/2017		O 232	Sep 05/2017		O 268	Sep 05/2017	
A 298.86	Sep 05/2017		O 233	Sep 05/2017		O 269	Sep 05/2017	
A 298.87	Sep 05/2017		O 234	Sep 05/2017		O 270	Sep 05/2017	
A 298.88	Sep 05/2017		O 235	Sep 05/2017		O 271	Sep 05/2017	
27-59 TASKS			O 236	Sep 05/2017		O 272	Sep 05/2017	
201	Sep 05/2016		O 237	Sep 05/2017		O 273	Sep 05/2017	
202	Sep 05/2016		O 238	Sep 05/2017		O 274	Sep 05/2017	
203	Sep 05/2016		O 239	Sep 05/2017		O 275	Sep 05/2017	
204	Sep 05/2016		O 240	Sep 05/2017		O 276	Sep 05/2017	
205	Sep 05/2016		O 241	Sep 05/2017		O 277	Sep 05/2017	
206	Sep 05/2016		O 242	Sep 05/2017		O 278	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-59 TASKS (cont)			27-59 TASKS (cont)			27-59 TASKS (cont)		
O 279	Sep 05/2017		O 298.17	Sep 05/2017		O 298.53	Sep 05/2017	
O 280	Sep 05/2017		O 298.18	Sep 05/2017		O 298.54	Sep 05/2017	
O 281	Sep 05/2017		O 298.19	Sep 05/2017		O 298.55	Sep 05/2017	
O 282	Sep 05/2017		O 298.20	Sep 05/2017		O 298.56	Sep 05/2017	
O 283	Sep 05/2017		O 298.21	Sep 05/2017		O 298.57	Sep 05/2017	
O 284	Sep 05/2017		O 298.22	Sep 05/2017		O 298.58	Sep 05/2017	
O 285	Sep 05/2017		O 298.23	Sep 05/2017		O 298.59	Sep 05/2017	
O 286	Sep 05/2017		O 298.24	Sep 05/2017		O 298.60	Sep 05/2017	
O 287	Sep 05/2017		O 298.25	Sep 05/2017		O 298.61	Sep 05/2017	
O 288	Sep 05/2017		O 298.26	Sep 05/2017		O 298.62	Sep 05/2017	
O 289	Sep 05/2017		O 298.27	Sep 05/2017		O 298.63	Sep 05/2017	
O 290	Sep 05/2017		O 298.28	Sep 05/2017		O 298.64	Sep 05/2017	
O 291	Sep 05/2017		O 298.29	Sep 05/2017		O 298.65	Sep 05/2017	
O 292	Sep 05/2017		O 298.30	Sep 05/2017		O 298.66	Sep 05/2017	
O 293	Sep 05/2017		O 298.31	Sep 05/2017		O 298.67	Sep 05/2017	
O 294	Sep 05/2017		O 298.32	Sep 05/2017		O 298.68	Sep 05/2017	
O 295	Sep 05/2017		O 298.33	Sep 05/2017		O 298.69	Sep 05/2017	
O 296	Sep 05/2017		O 298.34	Sep 05/2017		O 298.70	Sep 05/2017	
O 297	Sep 05/2017		O 298.35	Sep 05/2017		O 298.71	Sep 05/2017	
O 298	Sep 05/2017		O 298.36	Sep 05/2017		O 298.72	Sep 05/2017	
O 298.1	Sep 05/2017		O 298.37	Sep 05/2017		O 298.73	Sep 05/2017	
O 298.2	Sep 05/2017		O 298.38	Sep 05/2017		O 298.74	Sep 05/2017	
O 298.3	Sep 05/2017		O 298.39	Sep 05/2017		O 298.75	Sep 05/2017	
O 298.4	Sep 05/2017		O 298.40	Sep 05/2017		O 298.76	Sep 05/2017	
O 298.5	Sep 05/2017		O 298.41	Sep 05/2017		O 298.77	Sep 05/2017	
O 298.6	Sep 05/2017		O 298.42	Sep 05/2017		O 298.78	Sep 05/2017	
O 298.7	Sep 05/2017		O 298.43	Sep 05/2017		O 298.79	Sep 05/2017	
O 298.8	Sep 05/2017		O 298.44	Sep 05/2017		O 298.80	Sep 05/2017	
O 298.9	Sep 05/2017		O 298.45	Sep 05/2017		O 298.81	Sep 05/2017	
O 298.10	Sep 05/2017		O 298.46	Sep 05/2017		O 298.82	Sep 05/2017	
O 298.11	Sep 05/2017		O 298.47	Sep 05/2017		O 298.83	Sep 05/2017	
O 298.12	Sep 05/2017		O 298.48	Sep 05/2017		O 298.84	Sep 05/2017	
O 298.13	Sep 05/2017		O 298.49	Sep 05/2017		O 298.85	Sep 05/2017	
O 298.14	Sep 05/2017		O 298.50	Sep 05/2017		O 298.86	Sep 05/2017	
O 298.15	Sep 05/2017		O 298.51	Sep 05/2017		O 298.87	Sep 05/2017	
O 298.16	Sep 05/2017		O 298.52	Sep 05/2017		O 298.88	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-59 TASKS (cont)			27-61 TASKS (cont)			27-61 TASKS (cont)		
O 298.89	Sep 05/2017		216	May 05/2016		O 252	Sep 05/2017	
O 298.90	Sep 05/2017		217	Sep 05/2016		O 253	Sep 05/2017	
O 298.91	Sep 05/2017		218	Sep 05/2016		O 254	Sep 05/2017	
O 298.92	Sep 05/2017		219	Sep 05/2016		O 255	Sep 05/2017	
O 298.93	Sep 05/2017		220	Sep 05/2016		O 256	Sep 05/2017	
O 298.94	Sep 05/2017		221	Sep 05/2016		O 257	Sep 05/2017	
O 298.95	Sep 05/2017		222	Sep 05/2016		O 258	Sep 05/2017	
O 298.96	Sep 05/2017		223	Sep 05/2016		O 259	Sep 05/2017	
O 298.97	Sep 05/2017		224	Sep 05/2016		O 260	Sep 05/2017	
O 298.98	Sep 05/2017		225	Sep 05/2016		O 261	Sep 05/2017	
O 298.99	Sep 05/2017		226	Sep 05/2016		O 262	Sep 05/2017	
O 298.100	Sep 05/2017		227	Sep 05/2016		O 263	Sep 05/2017	
O 298.101	Sep 05/2017		228	Sep 05/2016		O 264	Sep 05/2017	
O 298.102	Sep 05/2017		229	Sep 05/2016		O 265	Sep 05/2017	
O 298.103	Sep 05/2017		230	Sep 05/2016		O 266	Sep 05/2017	
O 298.104	Sep 05/2017		231	Sep 05/2016		O 267	Sep 05/2017	
O 298.105	Sep 05/2017		232	Sep 05/2016		O 268	Sep 05/2017	
O 298.106	Sep 05/2017		233	May 05/2016		O 269	Sep 05/2017	
A 298.107	Sep 05/2017		234	May 05/2016		O 270	Sep 05/2017	
A 298.108	BLANK		235	May 05/2016		O 271	Sep 05/2017	
27-61 TASKS			236	May 05/2016		O 272	Sep 05/2017	
201	May 05/2016		R 237	Sep 05/2017		O 273	Sep 05/2017	
202	May 05/2016		R 238	Sep 05/2017		O 274	Sep 05/2017	
203	May 05/2016		O 239	Sep 05/2017		O 275	Sep 05/2017	
204	May 05/2016		O 240	Sep 05/2017		O 276	Sep 05/2017	
205	May 05/2016		O 241	Sep 05/2017		O 277	Sep 05/2017	
206	May 05/2016		O 242	Sep 05/2017		O 278	Sep 05/2017	
207	May 05/2016		O 243	Sep 05/2017		O 279	Sep 05/2017	
208	May 05/2016		O 244	Sep 05/2017		O 280	Sep 05/2017	
209	Sep 05/2016		O 245	Sep 05/2017		O 281	Sep 05/2017	
210	Sep 05/2016		O 246	Sep 05/2017		O 282	Sep 05/2017	
211	Sep 05/2016		O 247	Sep 05/2017		O 283	Sep 05/2017	
212	Sep 05/2016		O 248	Sep 05/2017		O 284	Sep 05/2017	
213	May 05/2016		O 249	Sep 05/2017		O 285	Sep 05/2017	
214	May 05/2016		O 250	Sep 05/2017		O 286	Sep 05/2017	
215	May 05/2016		O 251	Sep 05/2017		O 287	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-61 TASKS (cont)			27-61 TASKS (cont)			27-62 TASKS (cont)		
O 288	Sep 05/2017		O 298.26	Sep 05/2017		218	Sep 05/2016	
O 289	Sep 05/2017		R 298.27	Sep 05/2017		219	Sep 05/2016	
O 290	Sep 05/2017		R 298.28	Sep 05/2017		220	Sep 05/2016	
O 291	Sep 05/2017		O 298.29	Sep 05/2017		221	Sep 05/2016	
O 292	Sep 05/2017		O 298.30	Sep 05/2017		222	Sep 05/2016	
O 293	Sep 05/2017		O 298.31	Sep 05/2017		223	Sep 05/2016	
O 294	Sep 05/2017		O 298.32	Sep 05/2017		224	Sep 05/2016	
O 295	Sep 05/2017		O 298.33	Sep 05/2017		225	Sep 05/2016	
R 296	Sep 05/2017		O 298.34	Sep 05/2017		226	Sep 05/2016	
O 297	Sep 05/2017		O 298.35	Sep 05/2017		227	Sep 05/2016	
O 298	Sep 05/2017		O 298.36	Sep 05/2017		228	Sep 05/2016	
O 298.1	Sep 05/2017		O 298.37	Sep 05/2017		229	Sep 05/2016	
O 298.2	Sep 05/2017		O 298.38	Sep 05/2017		230	Sep 05/2016	
O 298.3	Sep 05/2017		27-61 TASK SUPPORT			27-81 TASKS		
O 298.4	Sep 05/2017		301	Jan 05/2013		201	Jan 05/2013	
O 298.5	Sep 05/2017		302	Jan 05/2013		202	Sep 05/2016	
O 298.6	Sep 05/2017		303	Jan 05/2013		203	Sep 05/2016	
O 298.7	Sep 05/2017		304	BLANK		204	Jan 05/2013	
O 298.8	Sep 05/2017		27-62 TASKS			205	Sep 05/2016	
O 298.9	Sep 05/2017		201	Jan 05/2015		206	Sep 05/2016	
O 298.10	Sep 05/2017		202	Jan 05/2015		207	Sep 05/2016	
O 298.11	Sep 05/2017		203	Jan 05/2015		O 208	Sep 05/2017	
O 298.12	Sep 05/2017		204	Sep 05/2013		O 209	Sep 05/2017	
O 298.13	Sep 05/2017		205	Jan 05/2015		O 210	Sep 05/2017	
O 298.14	Sep 05/2017		206	Sep 05/2016		O 211	Sep 05/2017	
O 298.15	Sep 05/2017		207	Sep 05/2016		212	Sep 05/2016	
O 298.16	Sep 05/2017		208	Sep 05/2016		213	Sep 05/2016	
O 298.17	Sep 05/2017		209	Sep 05/2016		O 214	Sep 05/2017	
O 298.18	Sep 05/2017		210	Sep 05/2016		O 215	Sep 05/2017	
O 298.19	Sep 05/2017		211	Sep 05/2016		O 216	Sep 05/2017	
O 298.20	Sep 05/2017		212	Sep 05/2016		O 217	Sep 05/2017	
O 298.21	Sep 05/2017		213	Sep 05/2016		O 218	Sep 05/2017	
O 298.22	Sep 05/2017		214	Sep 05/2016		O 219	Sep 05/2017	
O 298.23	Sep 05/2017		215	Sep 05/2016		O 220	Sep 05/2017	
R 298.24	Sep 05/2017		216	Sep 05/2016		O 221	Sep 05/2017	
R 298.25	Sep 05/2017		217	Sep 05/2016		O 222	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-81 TASKS (cont)			27-81 TASKS (cont)			27-81 TASKS (cont)		
O 223	Sep 05/2017		O 259	Sep 05/2017		O 295	Sep 05/2017	
O 224	Sep 05/2017		O 260	Sep 05/2017		O 296	Sep 05/2017	
O 225	Sep 05/2017		O 261	Sep 05/2017		O 297	Sep 05/2017	
O 226	Sep 05/2017		O 262	Sep 05/2017		O 298	Sep 05/2017	
O 227	Sep 05/2017		O 263	Sep 05/2017		O 298.1	Sep 05/2017	
O 228	Sep 05/2017		O 264	Sep 05/2017		O 298.2	Sep 05/2017	
O 229	Sep 05/2017		O 265	Sep 05/2017		O 298.3	Sep 05/2017	
O 230	Sep 05/2017		O 266	Sep 05/2017		O 298.4	Sep 05/2017	
O 231	Sep 05/2017		O 267	Sep 05/2017		O 298.5	Sep 05/2017	
O 232	Sep 05/2017		O 268	Sep 05/2017		O 298.6	Sep 05/2017	
O 233	Sep 05/2017		O 269	Sep 05/2017		O 298.7	Sep 05/2017	
O 234	Sep 05/2017		O 270	Sep 05/2017		O 298.8	Sep 05/2017	
O 235	Sep 05/2017		O 271	Sep 05/2017		O 298.9	Sep 05/2017	
O 236	Sep 05/2017		O 272	Sep 05/2017		O 298.10	Sep 05/2017	
O 237	Sep 05/2017		O 273	Sep 05/2017		O 298.11	Sep 05/2017	
O 238	Sep 05/2017		O 274	Sep 05/2017		O 298.12	Sep 05/2017	
O 239	Sep 05/2017		O 275	Sep 05/2017		O 298.13	Sep 05/2017	
O 240	Sep 05/2017		O 276	Sep 05/2017		O 298.14	Sep 05/2017	
O 241	Sep 05/2017		O 277	Sep 05/2017		O 298.15	Sep 05/2017	
O 242	Sep 05/2017		O 278	Sep 05/2017		O 298.16	Sep 05/2017	
O 243	Sep 05/2017		O 279	Sep 05/2017		O 298.17	Sep 05/2017	
O 244	Sep 05/2017		O 280	Sep 05/2017		O 298.18	Sep 05/2017	
O 245	Sep 05/2017		O 281	Sep 05/2017		O 298.19	Sep 05/2017	
O 246	Sep 05/2017		O 282	Sep 05/2017		O 298.20	Sep 05/2017	
O 247	Sep 05/2017		O 283	Sep 05/2017		O 298.21	Sep 05/2017	
O 248	Sep 05/2017		O 284	Sep 05/2017		O 298.22	Sep 05/2017	
O 249	Sep 05/2017		O 285	Sep 05/2017		O 298.23	Sep 05/2017	
O 250	Sep 05/2017		O 286	Sep 05/2017		O 298.24	Sep 05/2017	
O 251	Sep 05/2017		O 287	Sep 05/2017		O 298.25	Sep 05/2017	
O 252	Sep 05/2017		O 288	Sep 05/2017		O 298.26	Sep 05/2017	
O 253	Sep 05/2017		O 289	Sep 05/2017		O 298.27	Sep 05/2017	
O 254	Sep 05/2017		O 290	Sep 05/2017		O 298.28	Sep 05/2017	
O 255	Sep 05/2017		O 291	Sep 05/2017		O 298.29	Sep 05/2017	
O 256	Sep 05/2017		O 292	Sep 05/2017		O 298.30	Sep 05/2017	
O 257	Sep 05/2017		O 293	Sep 05/2017		O 298.31	Sep 05/2017	
O 258	Sep 05/2017		O 294	Sep 05/2017		O 298.32	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-81 TASKS (cont)			27-81 TASKS (cont)			27-82 TASKS (cont)		
O 298.33	Sep 05/2017		O 298.69	Sep 05/2017		O 216	Sep 05/2017	
O 298.34	Sep 05/2017		O 298.70	Sep 05/2017		O 217	Sep 05/2017	
O 298.35	Sep 05/2017		O 298.71	Sep 05/2017		218	Sep 05/2016	
O 298.36	Sep 05/2017		O 298.72	Sep 05/2017		O 219	Sep 05/2017	
O 298.37	Sep 05/2017		O 298.73	Sep 05/2017		O 220	Sep 05/2017	
O 298.38	Sep 05/2017		O 298.74	Sep 05/2017		O 221	Sep 05/2017	
O 298.39	Sep 05/2017		O 298.75	Sep 05/2017		O 222	Sep 05/2017	
O 298.40	Sep 05/2017		O 298.76	Sep 05/2017		O 223	Sep 05/2017	
O 298.41	Sep 05/2017		O 298.77	Sep 05/2017		O 224	Sep 05/2017	
O 298.42	Sep 05/2017		O 298.78	Sep 05/2017		O 225	Sep 05/2017	
O 298.43	Sep 05/2017		O 298.79	Sep 05/2017		O 226	Sep 05/2017	
O 298.44	Sep 05/2017		O 298.80	Sep 05/2017		O 227	Sep 05/2017	
O 298.45	Sep 05/2017		O 298.81	Sep 05/2017		O 228	Sep 05/2017	
O 298.46	Sep 05/2017		O 298.82	Sep 05/2017		O 229	Sep 05/2017	
O 298.47	Sep 05/2017		O 298.83	Sep 05/2017		O 230	Sep 05/2017	
O 298.48	Sep 05/2017		O 298.84	Sep 05/2017		O 231	Sep 05/2017	
O 298.49	Sep 05/2017		O 298.85	Sep 05/2017		O 232	Sep 05/2017	
O 298.50	Sep 05/2017		O 298.86	Sep 05/2017		O 233	Sep 05/2017	
O 298.51	Sep 05/2017		A 298.87	Sep 05/2017		O 234	Sep 05/2017	
O 298.52	Sep 05/2017		A 298.88	Sep 05/2017		O 235	Sep 05/2017	
O 298.53	Sep 05/2017		27-82 TASKS			O 236	Sep 05/2017	
O 298.54	Sep 05/2017		201	Jan 05/2013		O 237	Sep 05/2017	
O 298.55	Sep 05/2017		202	Sep 05/2016		O 238	Sep 05/2017	
O 298.56	Sep 05/2017		203	Sep 05/2016		O 239	Sep 05/2017	
O 298.57	Sep 05/2017		204	Jan 05/2013		O 240	Sep 05/2017	
O 298.58	Sep 05/2017		205	Sep 05/2016		O 241	Sep 05/2017	
O 298.59	Sep 05/2017		206	Sep 05/2016		O 242	Sep 05/2017	
O 298.60	Sep 05/2017		207	Sep 05/2016		O 243	Sep 05/2017	
O 298.61	Sep 05/2017		O 208	Sep 05/2017		O 244	Sep 05/2017	
O 298.62	Sep 05/2017		O 209	Sep 05/2017		O 245	Sep 05/2017	
O 298.63	Sep 05/2017		O 210	Sep 05/2017		O 246	Sep 05/2017	
O 298.64	Sep 05/2017		O 211	Sep 05/2017		O 247	Sep 05/2017	
O 298.65	Sep 05/2017		212	Sep 05/2016		O 248	Sep 05/2017	
O 298.66	Sep 05/2017		213	Sep 05/2016		O 249	Sep 05/2017	
O 298.67	Sep 05/2017		O 214	Sep 05/2017		O 250	Sep 05/2017	
O 298.68	Sep 05/2017		O 215	Sep 05/2017		O 251	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 27 FLIGHT CONTROLS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-82 TASKS (cont)			27-82 TASKS (cont)			27-82 TASKS (cont)		
O 252	Sep 05/2017		O 288	Sep 05/2017		O 298.26	Sep 05/2017	
O 253	Sep 05/2017		O 289	Sep 05/2017		O 298.27	Sep 05/2017	
O 254	Sep 05/2017		O 290	Sep 05/2017		O 298.28	Sep 05/2017	
O 255	Sep 05/2017		O 291	Sep 05/2017		O 298.29	Sep 05/2017	
O 256	Sep 05/2017		O 292	Sep 05/2017		O 298.30	Sep 05/2017	
O 257	Sep 05/2017		O 293	Sep 05/2017		O 298.31	Sep 05/2017	
O 258	Sep 05/2017		O 294	Sep 05/2017		O 298.32	Sep 05/2017	
O 259	Sep 05/2017		O 295	Sep 05/2017		O 298.33	Sep 05/2017	
O 260	Sep 05/2017		O 296	Sep 05/2017		O 298.34	Sep 05/2017	
O 261	Sep 05/2017		O 297	Sep 05/2017		O 298.35	Sep 05/2017	
O 262	Sep 05/2017		O 298	Sep 05/2017		O 298.36	Sep 05/2017	
O 263	Sep 05/2017		O 298.1	Sep 05/2017		O 298.37	Sep 05/2017	
O 264	Sep 05/2017		O 298.2	Sep 05/2017		O 298.38	Sep 05/2017	
O 265	Sep 05/2017		O 298.3	Sep 05/2017		O 298.39	Sep 05/2017	
O 266	Sep 05/2017		O 298.4	Sep 05/2017		O 298.40	Sep 05/2017	
O 267	Sep 05/2017		O 298.5	Sep 05/2017		O 298.41	Sep 05/2017	
O 268	Sep 05/2017		O 298.6	Sep 05/2017		O 298.42	Sep 05/2017	
O 269	Sep 05/2017		O 298.7	Sep 05/2017		O 298.43	Sep 05/2017	
O 270	Sep 05/2017		O 298.8	Sep 05/2017		O 298.44	Sep 05/2017	
O 271	Sep 05/2017		O 298.9	Sep 05/2017		O 298.45	Sep 05/2017	
O 272	Sep 05/2017		O 298.10	Sep 05/2017		O 298.46	Sep 05/2017	
O 273	Sep 05/2017		O 298.11	Sep 05/2017		O 298.47	Sep 05/2017	
O 274	Sep 05/2017		O 298.12	Sep 05/2017		O 298.48	Sep 05/2017	
O 275	Sep 05/2017		O 298.13	Sep 05/2017		O 298.49	Sep 05/2017	
O 276	Sep 05/2017		O 298.14	Sep 05/2017		O 298.50	Sep 05/2017	
O 277	Sep 05/2017		O 298.15	Sep 05/2017		O 298.51	Sep 05/2017	
O 278	Sep 05/2017		O 298.16	Sep 05/2017		O 298.52	Sep 05/2017	
O 279	Sep 05/2017		O 298.17	Sep 05/2017		O 298.53	Sep 05/2017	
O 280	Sep 05/2017		O 298.18	Sep 05/2017		O 298.54	Sep 05/2017	
O 281	Sep 05/2017		O 298.19	Sep 05/2017		O 298.55	Sep 05/2017	
O 282	Sep 05/2017		O 298.20	Sep 05/2017		O 298.56	Sep 05/2017	
O 283	Sep 05/2017		O 298.21	Sep 05/2017		O 298.57	Sep 05/2017	
O 284	Sep 05/2017		O 298.22	Sep 05/2017		O 298.58	Sep 05/2017	
O 285	Sep 05/2017		O 298.23	Sep 05/2017		O 298.59	Sep 05/2017	
O 286	Sep 05/2017		O 298.24	Sep 05/2017		O 298.60	Sep 05/2017	
O 287	Sep 05/2017		O 298.25	Sep 05/2017		O 298.61	Sep 05/2017	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



**777-200/300
FAULT ISOLATION MANUAL**

**CHAPTER 27
FLIGHT CONTROLS**

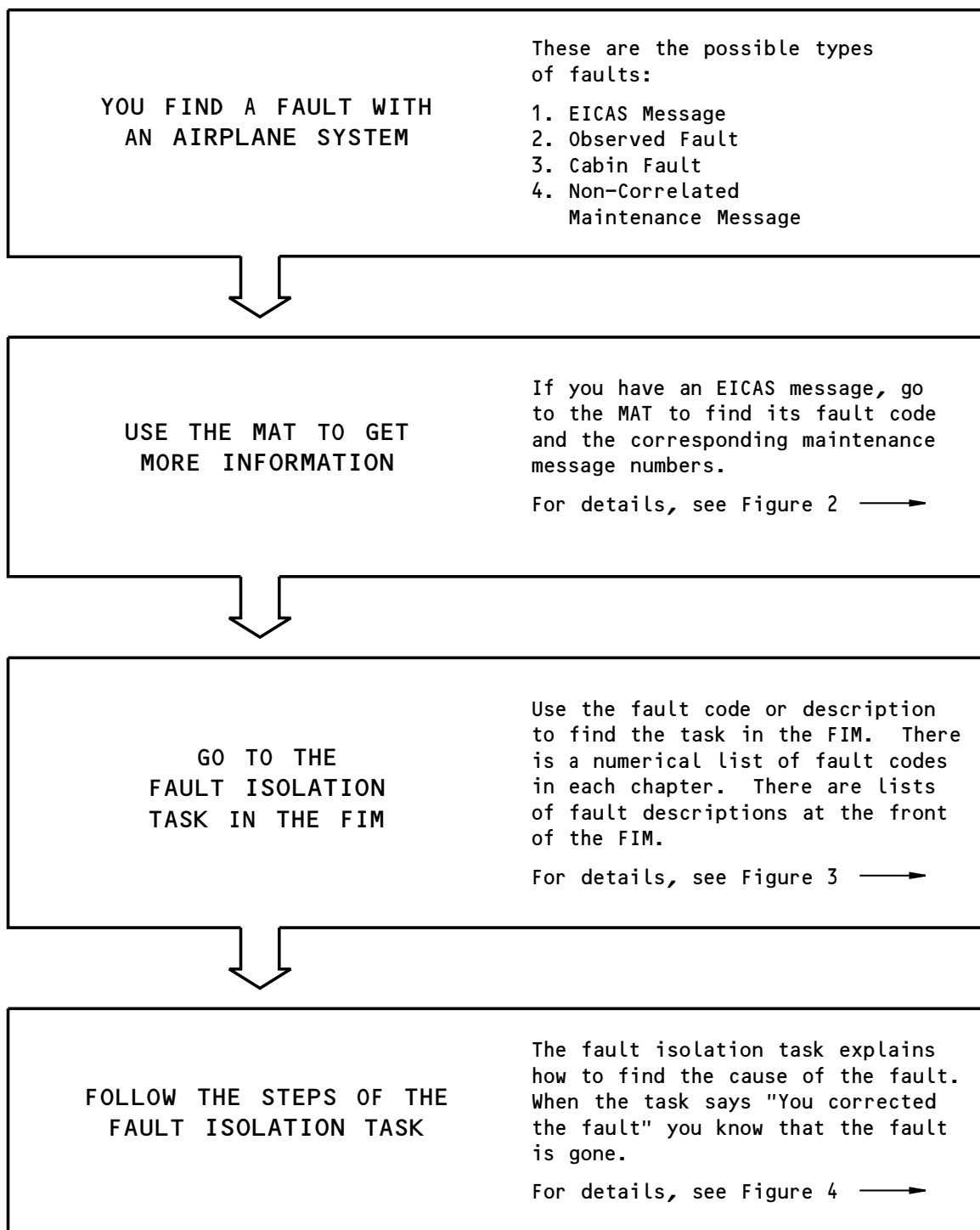
Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
27-82 TASKS (cont)			27-89 TASKS (cont)					
O 298.62	Sep 05/2017		231	Sep 05/2016				
O 298.63	Sep 05/2017		232	Sep 05/2016				
O 298.64	Sep 05/2017		233	Sep 05/2016				
A 298.65	Sep 05/2017		234	Sep 05/2016				
A 298.66	Sep 05/2017		235	Sep 05/2016				
27-89 TASKS			236	Sep 05/2016				
201	Jan 05/2013		237	Sep 05/2016				
202	Sep 05/2016		238	Sep 05/2016				
203	Sep 05/2016		239	Sep 05/2016				
204	Jan 05/2013		240	Sep 05/2016				
205	Jan 05/2013		241	Sep 05/2016				
206	Jan 05/2013		242	Sep 05/2016				
207	Jan 05/2013		243	Sep 05/2016				
208	Jan 05/2013		244	Sep 05/2016				
209	Jan 05/2013		245	Sep 05/2016				
210	Jan 05/2013		246	Sep 05/2016				
211	Jan 05/2013		247	Sep 05/2016				
212	Jan 05/2013		248	Sep 05/2016				
213	Jan 05/2013		249	Sep 05/2016				
214	Jan 05/2013		250	Sep 05/2016				
215	Jan 05/2013		251	Sep 05/2016				
216	Jan 05/2013		252	Sep 05/2016				
217	Sep 05/2016		253	Sep 05/2016				
218	Sep 05/2016		254	Sep 05/2016				
219	Sep 05/2016		255	Sep 05/2016				
220	Sep 05/2016		256	Sep 05/2016				
221	Sep 05/2016		257	Sep 05/2016				
222	Sep 05/2016		258	Sep 05/2016				
223	Sep 05/2016		259	Sep 05/2016				
224	Sep 05/2016		260	Sep 05/2016				
225	Sep 05/2016		27-98 TASKS					
226	Sep 05/2016		201	Jan 05/2013				
227	Sep 05/2016		202	Jan 05/2017				
228	Sep 05/2016		203	May 05/2014				
229	Sep 05/2016		204	Jan 05/2013				
230	Sep 05/2016							

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

27-EFFECTIVE PAGES



777-200/300 FAULT ISOLATION MANUAL



E84424 S0000132469_V1

Basic Fault Isolation Process
Figure 1

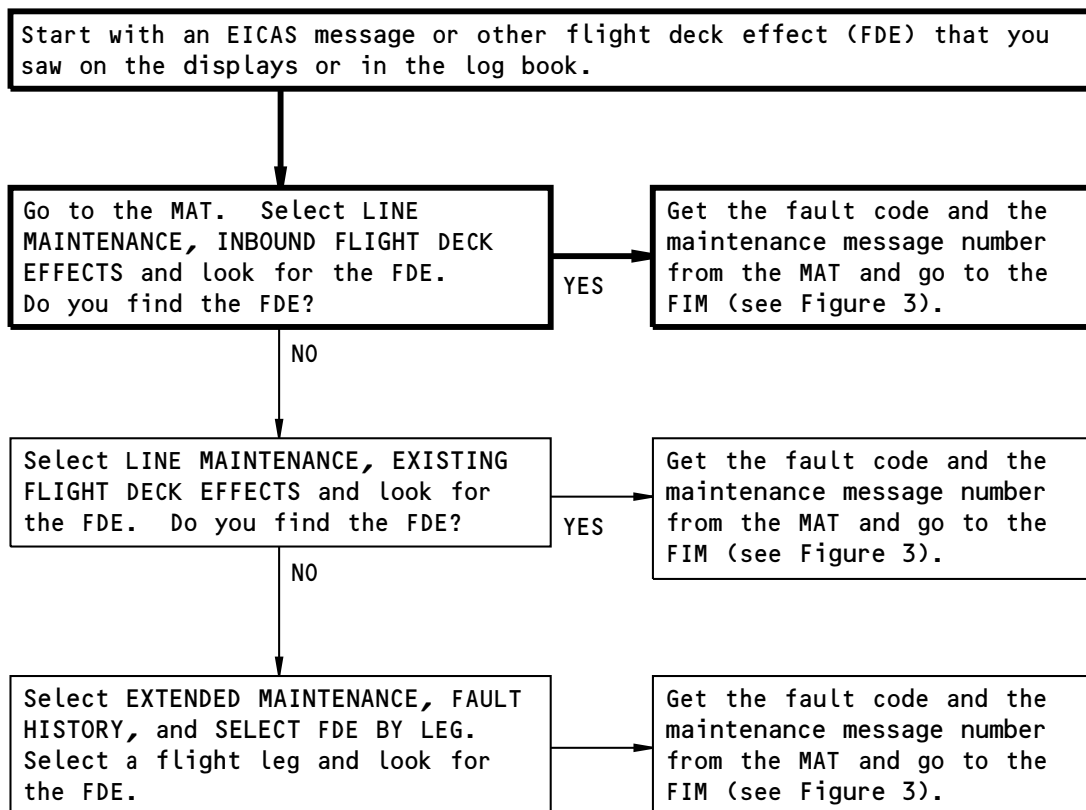
EFFECTIVITY
ARO ALL

27-HOW TO USE THE FIM

D633W103-ARO

Page 1
Jan 05/2013

 BOEING
777-200/300
FAULT ISOLATION MANUAL



NOTE: The bold lines show the most common path.

E84425 S0000132475_V1

Getting Fault Information from the MAT
Figure 2

EFFECTIVITY
ARO ALL

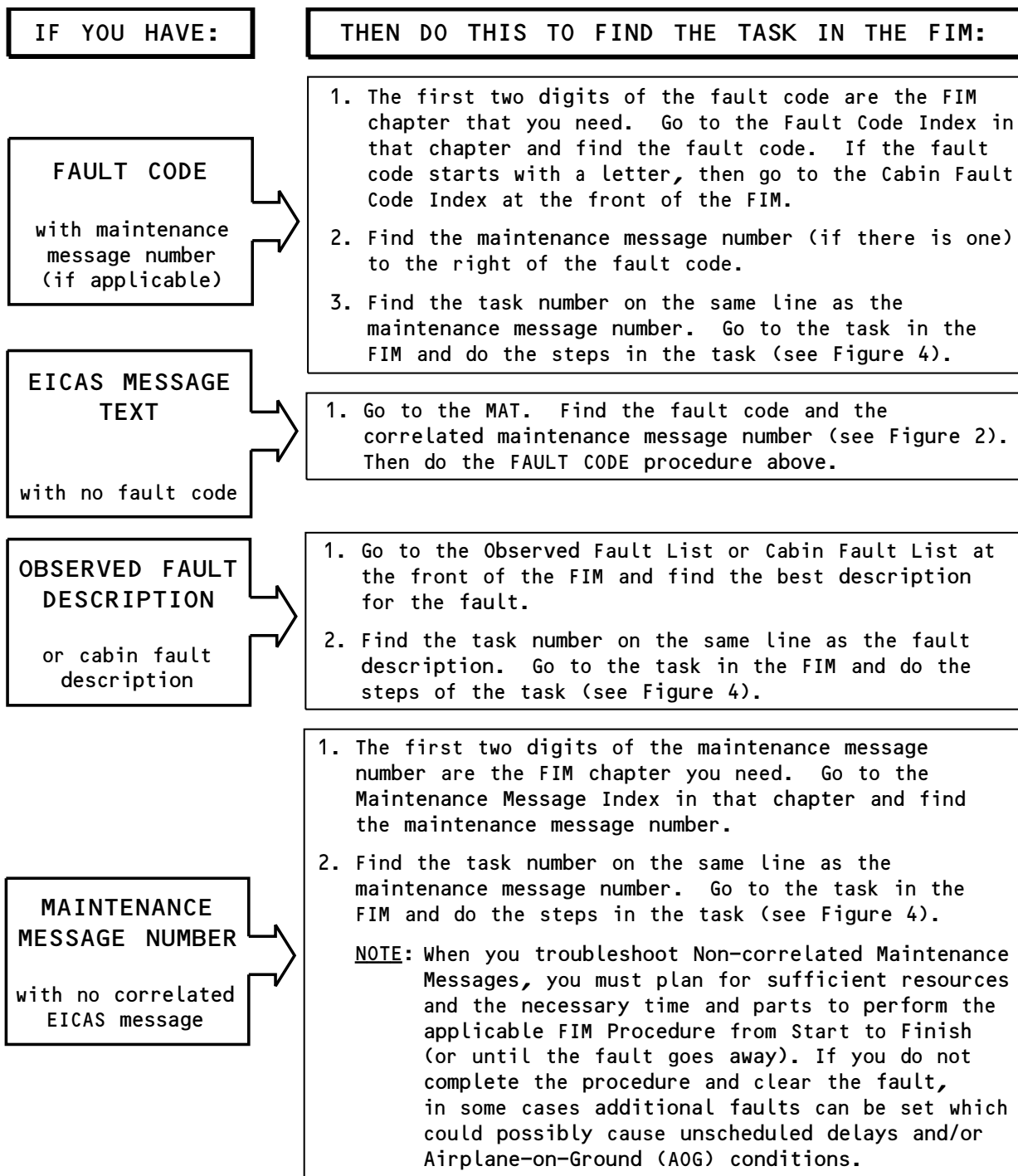
27-HOW TO USE THE FIM

D633W103-ARO

Page 2
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL



E84427 S0000132476_V2

Finding the Fault Isolation Task in the FIM
Figure 3

EFFECTIVITY
ARO ALL

27-HOW TO USE THE FIM

D633W103-ARO

Page 3
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

ASSUMED CONDITIONS AT START OF TASK

- External electrical power is ON
- Hydraulic power and pneumatic power are OFF
- Engines are shut down
- No equipment in the system is deactivated

INITIAL EVALUATION PARAGRAPH

- The Initial Evaluation paragraph at the start of the task helps you determine whether you can detect the fault right now.
- If you cannot detect the fault right now, then the task cannot isolate the fault and the Initial Evaluation paragraph will say that there was an intermittent fault.
- If you have an intermittent fault, you must use your judgement (and follow your airline's policy) to decide which components to replace. Then monitor the airplane to see if the fault happens again on subsequent flights.

FAULT ISOLATION STEPS

- The FIM task steps are presented in a specified order. "The If... then" statements will guide you along a logical path. But if you do not plan to follow the FIM task exactly, make sure that you read it before you start to isolate the fault. Some FIM procedures start with important steps that have an effect on the other steps in the procedure.
- When you are at the endpoint of the path, the step says "You corrected the fault." Complete the step and exit the procedure.
- The Recommended Maintenance Action that shows on the MAT for the maintenance message gives a list of possible causes in order by probability of failure. In the FIM procedure, the possible causes can be in a different order from the MAT.

WIRING CHECKS

When a step says "Do a wiring check", do these three types of electrical checks for the specified contacts (pins):

- continuity from contact to contact
- shorts between the contacts
- shorts from each contact to ground

E84428 S0000132477_V3

Doing the Fault Isolation Task
Figure 4

EFFECTIVITY
ARO ALL

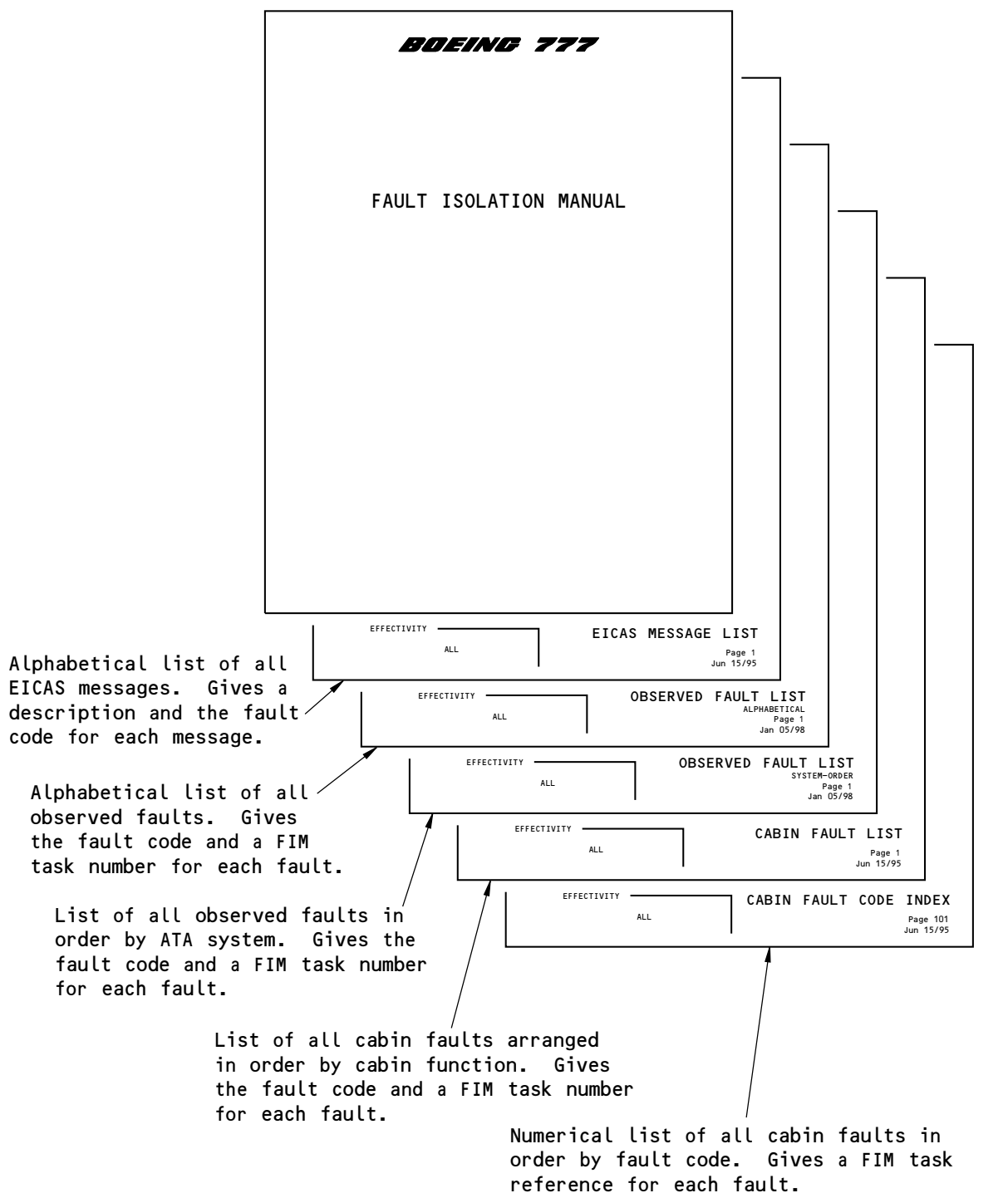
27-HOW TO USE THE FIM

D633W103-ARO

Page 4
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL



F39750 S0000132478_V1

Subjects at Front of FIM
Figure 5

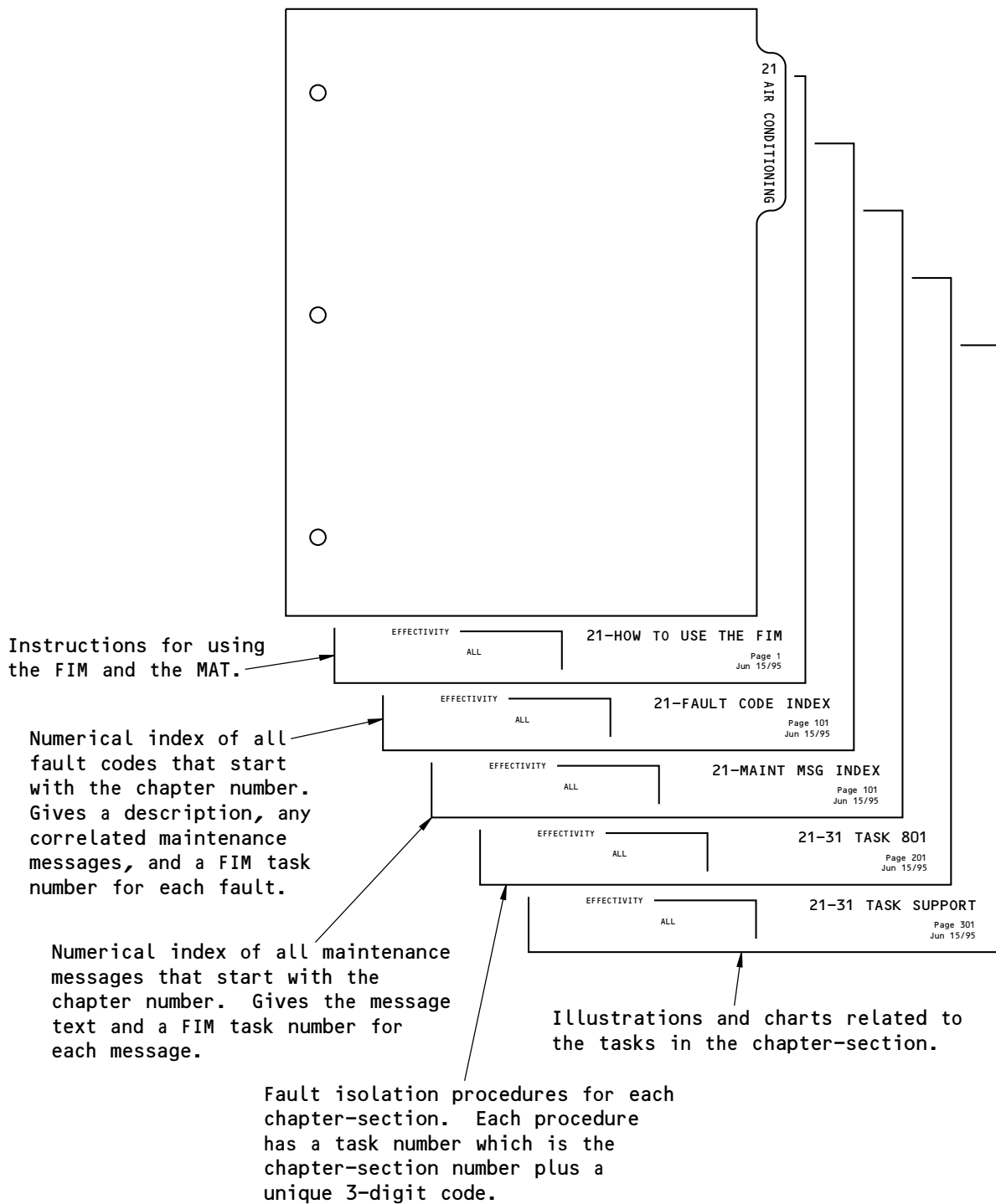
EFFECTIVITY	_____
ARO ALL	_____

27-HOW TO USE THE FIM

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL



F39837 S0000132479_V1

Subjects in Each FIM Chapter
Figure 6

EFFECTIVITY
ARO ALL

27-HOW TO USE THE FIM

D633W103-ARO

Page 6
Jan 05/2013



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 001 00	FLIGHT CONTROLS (EICAS CAUTION)	23-41110	23-93 TASK 801
		23-41120	23-93 TASK 803
		23-41130	23-93 TASK 801
		23-41140	23-93 TASK 803
		23-41340	23-93 TASK 803
		23-41360	23-93 TASK 801
		23-41710	23-93 TASK 801
		23-41720	23-93 TASK 803
		23-42110	23-93 TASK 802
		23-42120	23-93 TASK 804
		23-42130	23-93 TASK 802
		23-42140	23-93 TASK 804
		23-42340	23-93 TASK 804
		23-42360	23-93 TASK 802
		23-42710	23-93 TASK 802
		23-42720	23-93 TASK 804
		23-43110	29-11 TASK 880
		23-43120	29-11 TASK 881
		23-43130	29-11 TASK 882
		23-43140	29-11 TASK 883
		23-43340	29-11 TASK 842
		23-43360	29-11 TASK 884
		23-43710	29-11 TASK 885
		23-43720	29-11 TASK 886
		23-81001	23-91 TASK 801
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		24-11782	24-51 TASK 838
		24-11786	24-51 TASK 833
		24-11787	24-32 TASK 817
		24-12056	24-32 TASK 820
		24-12124	24-51 TASK 840
		24-12127	24-51 TASK 842
		24-12128	24-51 TASK 843

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 101
Jan 05/2013



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 001 00	FLIGHT CONTROLS (EICAS CAUTION)	(continued)	
		24-13801	24-61 TASK 805
		24-13815	24-61 TASK 806
		24-13816	24-32 TASK 831
		27-10000	27-41 TASK 826
		27-10001	27-41 TASK 801
		27-10002	27-41 TASK 827
		27-10003	27-41 TASK 802
		27-10004	27-41 TASK 828
		27-10005	27-41 TASK 803
		27-10006	27-41 TASK 845
		27-10007	27-41 TASK 829
		27-10008	27-41 TASK 804
		27-10017	27-41 TASK 806
		27-10018	27-41 TASK 833
		27-10019	27-41 TASK 834
		27-10020	27-41 TASK 819
		27-10021	27-41 TASK 835
		27-10022	27-41 TASK 814
		27-10023	27-41 TASK 836
		27-10024	27-41 TASK 815
		27-10025	27-41 TASK 846
		27-10026	27-41 TASK 847
		27-10100	27-31 TASK 868
		27-10101	27-31 TASK 801
		27-10102	27-31 TASK 869
		27-10103	27-31 TASK 870
		27-10128	27-31 TASK 823
		27-10129	27-31 TASK 853
		27-10222	27-11 TASK 926
		27-10223	27-11 TASK 927
		27-11000	27-41 TASK 807
		27-11001	27-41 TASK 810
		27-11002	27-41 TASK 811
		27-11003	27-41 TASK 820
		27-11004	27-41 TASK 837

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 102
May 05/2015



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 001 00	FLIGHT CONTROLS (EICAS CAUTION)	(continued)	
		27-11005	27-41 TASK 838
		27-11006	27-41 TASK 808
		27-11100	27-31 TASK 855
		27-11101	27-31 TASK 826
		27-11102	27-31 TASK 856
		27-11103	27-31 TASK 857
		27-11106	27-31 TASK 813
		27-11107	27-31 TASK 804
		27-11108	27-31 TASK 814
		27-11109	27-31 TASK 815
		27-11114	27-31 TASK 887
		27-11115	27-31 TASK 806
		27-11116	27-31 TASK 888
		27-11117	27-31 TASK 889
		27-12014	27-11 TASK 835
		27-12114	27-31 TASK 810
		27-12206	27-21 TASK 865
		27-12400	27-41 TASK 809
		27-12401	27-41 TASK 839
		27-12402	27-41 TASK 840
		27-12403	27-41 TASK 841
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-13008	27-02 TASK 807
		27-13009	27-02 TASK 877
		27-13010	27-02 TASK 878
		27-13011	27-02 TASK 879
		27-13012	27-02 TASK 821
		27-13013	27-02 TASK 822
		27-13014	27-02 TASK 823
		27-13015	27-02 TASK 824
		27-13020	27-02 TASK 818
		27-13022	27-02 TASK 829

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 103
May 05/2015



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 001 00	FLIGHT CONTROLS (EICAS CAUTION)	(continued)	
		27-13023	27-02 TASK 830
		27-13046	27-02 TASK 805
		27-13047	27-02 TASK 862
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-15009	27-02 TASK 802
		27-15010	27-02 TASK 849
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15013	27-41 TASK 843
		27-15014	27-41 TASK 817
		27-15015	27-41 TASK 844
		27-15016	27-41 TASK 818
		27-15017	27-31 TASK 864
		27-15018	27-31 TASK 828
		27-15019	27-31 TASK 865
		27-15020	27-31 TASK 893
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-16048	27-31 TASK 883
		27-16049	27-31 TASK 884
		27-17022	27-02 TASK 816
		27-17023	27-02 TASK 891
		27-17024	27-02 TASK 892
		29-10130	29-11 TASK 845
		29-10140	29-11 TASK 846
		29-10150	29-11 TASK 894
		29-10180	29-11 TASK 803
		29-10190	29-11 TASK 853
		29-10200	29-21 TASK 801
		29-10210	29-21 TASK 804
		29-10220	29-11 TASK 929
		29-10230	29-11 TASK 930
		29-10240	29-21 TASK 802

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 104
May 05/2015



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 001 00	FLIGHT CONTROLS (EICAS CAUTION)	(continued)	
		29-10250	29-21 TASK 805
		29-10330	29-11 TASK 827
		29-10340	29-11 TASK 813
		29-10420	29-11 TASK 814
		29-10430	29-11 TASK 815
		29-10440	29-11 TASK 816
		29-10470	29-11 TASK 858
		29-10480	29-11 TASK 859
		29-10490	29-11 TASK 860
		29-10510	29-11 TASK 819
		29-10530	29-11 TASK 862
		29-10550	29-11 TASK 896
		29-10570	29-11 TASK 898
		29-10580	29-11 TASK 863
		29-10620	29-11 TASK 899
		29-10650	29-11 TASK 825
		29-10660	29-11 TASK 826
		29-10690	29-11 TASK 829
		29-10710	29-11 TASK 900
		29-10740	29-11 TASK 867
		29-10750	29-11 TASK 868
		29-10760	29-11 TASK 830
		29-10950	29-11 TASK 836
		29-10980	29-11 TASK 908
		29-11020	29-11 TASK 840
		29-11030	29-11 TASK 879
		29-11040	29-11 TASK 841
		29-11060	29-11 TASK 928
		29-11070	29-11 TASK 928
		29-11080	29-11 TASK 928
		29-11090	29-11 TASK 928
		29-11100	29-11 TASK 838
		29-11110	29-11 TASK 877
		29-17005	29-11 TASK 948
		29-17006	29-11 TASK 949

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 105
May 05/2015



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 001 00	FLIGHT CONTROLS (EICAS CAUTION)	(continued)	
		29-17007	29-11 TASK 950
		29-17008	29-11 TASK 951
		29-17009	29-11 TASK 952
		29-17010	29-11 TASK 953
		29-17011	29-11 TASK 954
		29-17020	29-11 TASK 956
		29-17021	29-11 TASK 957
		29-17022	29-11 TASK 958
		29-17023	29-11 TASK 959
		29-17024	29-11 TASK 955
		29-18893	29-11 TASK 913
		29-18894	29-11 TASK 914
		31-14011	31-09 TASK 812
		31-14012	31-09 TASK 813
		31-14013	31-09 TASK 814
		31-14014	31-09 TASK 815
		31-14015	31-09 TASK 816
		31-14016	31-09 TASK 817
		31-14017	31-09 TASK 818
		31-14018	31-09 TASK 818
		31-17437	31-09 TASK 835
		31-17438	31-09 TASK 836
		31-17639	31-10 TASK 814
		31-17640	31-10 TASK 815
		31-17905	31-07 TASK 801
		31-17906	31-07 TASK 802
		31-17907	31-07 TASK 803
		31-17908	31-07 TASK 804
		31-18801	31-08 TASK 810
		31-18802	31-08 TASK 811
		31-18803	31-08 TASK 812
		31-18804	31-08 TASK 813
		31-18841	31-08 TASK 814
		31-18842	31-08 TASK 814
		31-18863	31-08 TASK 816

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 106
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 001 00	FLIGHT CONTROLS (EICAS CAUTION)	(continued)	
		31-18864	31-08 TASK 817
		32-21000	32-09 TASK 807
		32-21100	32-09 TASK 802
		32-21300	32-09 TASK 803
		32-22000	32-09 TASK 809
		32-22100	32-09 TASK 809
		32-28801	32-09 TASK 821
270 011 00	FLIGHT CONTROL MODE (EICAS CAUTION)	NONE	27-02 TASK 989
		21-16205	21-25 TASK 823
		23-41720	23-93 TASK 803
		23-42720	23-93 TASK 804
		23-43720	29-11 TASK 886
		23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		24-11780	24-53 TASK 805
		24-11781	24-51 TASK 837
		24-11784	24-51 TASK 836
		24-11786	24-51 TASK 833
		24-11790	24-08 TASK 833
		24-11793	24-08 TASK 834
		24-11795	24-08 TASK 804
		24-11796	24-08 TASK 804
		24-12057	24-08 TASK 836
		24-12122	24-08 TASK 835
		24-12124	24-51 TASK 840
		24-12125	24-51 TASK 841
		24-12126	24-51 TASK 841
		24-12127	24-51 TASK 842
		24-12800	24-08 TASK 805
		24-12801	24-08 TASK 805
		24-18801	24-09 TASK 806
		24-18802	24-09 TASK 807

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 107
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 011 00	FLIGHT CONTROL MODE (EICAS CAUTION)	(continued)	
		24-78841	24-08 TASK 860
		24-78842	24-08 TASK 862
		24-78861	24-08 TASK 861
		24-78862	24-08 TASK 863
		27-10000	27-41 TASK 826
		27-10001	27-41 TASK 801
		27-10002	27-41 TASK 827
		27-10003	27-41 TASK 802
		27-10004	27-41 TASK 828
		27-10005	27-41 TASK 803
		27-10006	27-41 TASK 845
		27-10007	27-41 TASK 829
		27-10008	27-41 TASK 804
		27-10017	27-41 TASK 806
		27-10018	27-41 TASK 833
		27-10019	27-41 TASK 834
		27-10020	27-41 TASK 819
		27-10021	27-41 TASK 835
		27-10022	27-41 TASK 814
		27-10023	27-41 TASK 836
		27-10024	27-41 TASK 815
		27-10025	27-41 TASK 846
		27-10026	27-41 TASK 847
		27-10100	27-31 TASK 868
		27-10101	27-31 TASK 801
		27-10102	27-31 TASK 869
		27-10103	27-31 TASK 870
		27-11000	27-41 TASK 807
		27-11001	27-41 TASK 810
		27-11002	27-41 TASK 811
		27-11003	27-41 TASK 820
		27-11004	27-41 TASK 837
		27-11005	27-41 TASK 838
		27-11006	27-41 TASK 808
		27-11100	27-31 TASK 855

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 108
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 011 00	FLIGHT CONTROL MODE (EICAS CAUTION)	(continued)	
		27-11101	27-31 TASK 826
		27-11102	27-31 TASK 856
		27-11103	27-31 TASK 857
		27-11106	27-31 TASK 813
		27-11107	27-31 TASK 804
		27-11108	27-31 TASK 814
		27-11109	27-31 TASK 815
		27-11114	27-31 TASK 887
		27-11115	27-31 TASK 806
		27-11116	27-31 TASK 888
		27-11117	27-31 TASK 889
		27-12000	27-11 TASK 846
		27-12001	27-11 TASK 907
		27-12002	27-11 TASK 908
		27-12003	27-11 TASK 834
		27-12004	27-11 TASK 890
		27-12005	27-11 TASK 891
		27-12006	27-11 TASK 843
		27-12007	27-11 TASK 909
		27-12008	27-11 TASK 910
		27-12009	27-11 TASK 911
		27-12010	27-11 TASK 849
		27-12011	27-11 TASK 850
		27-12012	27-11 TASK 884
		27-12013	27-11 TASK 843
		27-12014	27-11 TASK 835
		27-12100	27-31 TASK 807
		27-12101	27-31 TASK 816
		27-12102	27-31 TASK 817
		27-12103	27-31 TASK 808
		27-12104	27-31 TASK 818
		27-12105	27-31 TASK 819
		27-12106	27-31 TASK 809
		27-12107	27-31 TASK 858
		27-12108	27-31 TASK 859

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 109
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 011 00	FLIGHT CONTROL MODE (EICAS CAUTION)	(continued)	
		27-12109	27-31 TASK 860
		27-12110	27-31 TASK 861
		27-12111	27-31 TASK 862
		27-12112	27-31 TASK 863
		27-12113	27-31 TASK 809
		27-12200	27-21 TASK 813
		27-12201	27-21 TASK 858
		27-12202	27-21 TASK 859
		27-12203	27-21 TASK 860
		27-12204	27-21 TASK 814
		27-12205	27-21 TASK 814
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-13008	27-02 TASK 807
		27-13009	27-02 TASK 877
		27-13010	27-02 TASK 878
		27-13011	27-02 TASK 879
		27-13012	27-02 TASK 821
		27-13013	27-02 TASK 822
		27-13014	27-02 TASK 823
		27-13015	27-02 TASK 824
		27-13016	27-02 TASK 817
		27-13017	27-02 TASK 825
		27-13018	27-02 TASK 826
		27-13019	27-02 TASK 827
		27-13020	27-02 TASK 818
		27-13022	27-02 TASK 829
		27-13023	27-02 TASK 830
		27-13025	27-02 TASK 819
		27-13026	27-02 TASK 832
		27-13027	27-02 TASK 833
		27-13046	27-02 TASK 805
		27-13047	27-02 TASK 862

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 110
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 011 00	FLIGHT CONTROL MODE (EICAS CAUTION)	(continued)	
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-14018	27-02 TASK 813
		27-14019	27-02 TASK 941
		27-14020	27-02 TASK 942
		27-14024	27-02 TASK 806
		27-14025	27-02 TASK 943
		27-14026	27-02 TASK 944
		27-14027	27-02 TASK 945
		27-14030	27-02 TASK 905
		27-14031	27-02 TASK 906
		27-14032	27-02 TASK 907
		27-14033	27-02 TASK 908
		27-15009	27-02 TASK 802
		27-15010	27-02 TASK 849
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15013	27-41 TASK 843
		27-15014	27-41 TASK 817
		27-15015	27-41 TASK 844
		27-15016	27-41 TASK 818
		27-15017	27-31 TASK 864
		27-15018	27-31 TASK 828
		27-15019	27-31 TASK 865
		27-15020	27-31 TASK 893
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-17022	27-02 TASK 816
		27-17023	27-02 TASK 891
		27-17024	27-02 TASK 892
		27-18811	27-02 TASK 901
		27-18822	27-02 TASK 919
		27-18833	27-02 TASK 920
		27-19101	27-02 TASK 974

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 111
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 011 00	FLIGHT CONTROL MODE (EICAS CAUTION)	(continued)	
		27-19104	27-02 TASK 975
		27-19110	27-02 TASK 976
		27-19201	27-02 TASK 979
		27-19237	27-02 TASK 982
		27-19301	27-02 TASK 983
		27-19307	27-02 TASK 984
		27-19310	27-02 TASK 985
		29-10150	29-11 TASK 894
		29-10330	29-11 TASK 827
		29-10740	29-11 TASK 867
		30-36121	30-31 TASK 801
		30-36122	30-31 TASK 802
		30-36123	30-31 TASK 803
		30-36421	30-31 TASK 804
		30-36423	30-31 TASK 805
		30-36521	30-31 TASK 806
		30-36523	30-31 TASK 810
		30-36641	30-31 TASK 807
		30-36642	30-31 TASK 808
		30-36643	30-31 TASK 809
		31-50011	31-44 TASK 801
		31-50012	31-44 TASK 802
		31-50091	31-44 TASK 819
		31-50092	31-44 TASK 820
		31-51023	31-44 TASK 865
		31-51024	31-44 TASK 866
		31-51025	31-43 TASK 803
		31-51026	31-43 TASK 804
		31-51033	31-44 TASK 869
		31-51034	31-44 TASK 870
		31-51043	31-44 TASK 871
		31-51044	31-44 TASK 872
		31-51411	34-61 TASK 913
		31-51412	34-61 TASK 914
		31-51413	34-61 TASK 815

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 112
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 011 00	FLIGHT CONTROL MODE (EICAS CAUTION)	(continued)	
		31-51414	34-61 TASK 889
		31-51421	34-61 TASK 888
		31-51422	34-61 TASK 814
		31-51423	34-61 TASK 815
		31-51424	34-61 TASK 889
		31-51531	31-44 TASK 837
		31-51532	31-44 TASK 838
		31-51533	31-44 TASK 839
		31-51534	31-44 TASK 840
		31-51731	31-44 TASK 841
		31-51732	31-44 TASK 842
		31-51733	31-44 TASK 843
		31-51734	31-44 TASK 844
		31-52013	31-43 TASK 866
		31-52014	31-43 TASK 867
		31-52112	31-41 TASK 820
		31-53401	31-41 TASK 832
		31-53402	31-41 TASK 833
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54102	31-41 TASK 835
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-55401	31-41 TASK 840
		31-55402	31-41 TASK 841
		31-56013	31-43 TASK 870
		31-56111	31-41 TASK 846
		31-58013	31-43 TASK 872
		31-58014	31-43 TASK 873
		31-58101	31-41 TASK 852
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-59401	31-41 TASK 992
		31-59402	31-41 TASK 993
		31-61011	31-43 TASK 861

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 113
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 011 00	FLIGHT CONTROL MODE (EICAS CAUTION)	(continued)	
		31-61012	31-43 TASK 862
		31-61020	31-43 TASK 863
		31-61071	31-43 TASK 841
		31-61072	31-43 TASK 842
		31-68801	31-43 TASK 892
		31-68802	31-43 TASK 893
		31-68811	31-42 TASK 908
		31-68832	31-42 TASK 908
		31-69101	31-42 TASK 801
		31-69302	31-42 TASK 817
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69496	31-42 TASK 915
		31-69497	31-42 TASK 915
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		31-89417	31-42 TASK 915
		31-89418	31-42 TASK 915
		31-89617	31-42 TASK 916
		31-89618	31-42 TASK 916
		31-89619	31-42 TASK 916
		31-89620	31-42 TASK 916
		34-25101	34-11 TASK 801
		34-25102	34-11 TASK 802
		34-25103	34-11 TASK 803
		34-25201	34-11 TASK 804
		34-25202	34-11 TASK 805
		34-25203	34-11 TASK 806
		34-25601	34-21 TASK 808
		34-25603	34-21 TASK 885
		34-25800	34-21 TASK 809
		34-26101	34-21 TASK 810
		34-26102	34-21 TASK 839
		34-26103	34-21 TASK 840
		34-26201	34-21 TASK 843

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 114
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 011 00	FLIGHT CONTROL MODE (EICAS CAUTION)	(continued)	
		34-26202	34-21 TASK 844
		34-26203	34-21 TASK 845
		34-28801	34-21 TASK 848
		34-28810	34-21 TASK 849
		34-28813	34-21 TASK 813
		34-28816	34-21 TASK 814
		34-28824	34-21 TASK 850
		34-28827	34-21 TASK 851
		34-28830	34-21 TASK 852
		34-28835	34-21 TASK 853
		34-28838	34-21 TASK 854
		34-29101	34-21 TASK 893
		34-29102	34-21 TASK 815
		34-29105	34-21 TASK 816
		34-29107	34-21 TASK 817
		34-29115	34-21 TASK 857
		34-29120	34-21 TASK 894
		34-29201	34-21 TASK 858
		34-29202	34-21 TASK 859
		34-29204	34-21 TASK 860
		34-29216	34-21 TASK 862
		34-29301	34-21 TASK 895
		34-29303	34-21 TASK 864
		34-29306	34-21 TASK 865
		34-29308	34-21 TASK 866
		34-29317	34-21 TASK 869
		34-29320	34-21 TASK 896
		34-30700	34-21 TASK 870
		34-30711	34-21 TASK 818
		34-30713	34-21 TASK 872
		34-30760	34-21 TASK 819
		34-31601	34-21 TASK 821
		34-32601	34-21 TASK 822
		34-32803	34-21 TASK 822
		34-33800	34-21 TASK 886

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 115
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 011 00	FLIGHT CONTROL MODE (EICAS CAUTION)	(continued)	
		34-34603	34-21 TASK 887
		34-35603	34-21 TASK 888
		34-36800	34-21 TASK 890
		34-38310	34-21 TASK 819
		34-38801	34-21 TASK 874
		34-38820	34-21 TASK 898
		34-39101	34-21 TASK 825
		34-39103	34-21 TASK 826
		34-39106	34-21 TASK 827
		34-39111	34-21 TASK 828
		34-39118	34-21 TASK 829
		34-39201	34-21 TASK 871
		34-39204	34-21 TASK 876
		34-39207	34-21 TASK 877
		34-39301	34-21 TASK 879
		34-39305	34-21 TASK 880
		34-39308	34-21 TASK 881
		34-39312	34-21 TASK 882
		34-39318	34-21 TASK 884
270 012 00	PRI FLIGHT COMPUTERS (EICAS CAUTION)	34-71011	34-61 TASK 905
		34-71012	34-61 TASK 906
		34-71060	34-90 TASK 801
		23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81005	23-91 TASK 805
		23-81006	23-91 TASK 806
		23-81007	23-91 TASK 807
		24-11787	24-32 TASK 817
		24-12051	24-32 TASK 819
		24-12056	24-32 TASK 820
		24-13801	24-61 TASK 805
		24-13815	24-61 TASK 806

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 116
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 012 00	PRI FLIGHT COMPUTERS (EICAS CAUTION)	(continued)	
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-13041	27-02 TASK 845
		27-13042	27-02 TASK 846
		27-13043	27-02 TASK 847
		27-13044	27-02 TASK 848
		27-14000	27-02 TASK 812
		27-14001	27-02 TASK 886
		27-14002	27-02 TASK 887
		27-14006	27-02 TASK 935
		27-14007	27-02 TASK 936
		27-14008	27-02 TASK 937
		27-14012	27-02 TASK 938
		27-14013	27-02 TASK 939
		27-14014	27-02 TASK 940
		27-14018	27-02 TASK 813
		27-14019	27-02 TASK 941
		27-14020	27-02 TASK 942
		27-14024	27-02 TASK 806
		27-14025	27-02 TASK 943
		27-14026	27-02 TASK 944
		27-14027	27-02 TASK 945
		27-14030	27-02 TASK 905
		27-14031	27-02 TASK 906
		27-14032	27-02 TASK 907
		27-14033	27-02 TASK 908
		27-15000	27-02 TASK 803
		27-15001	27-02 TASK 852
		27-15002	27-02 TASK 853
		27-15003	27-02 TASK 854
		27-15004	27-02 TASK 855
		27-15005	27-02 TASK 856

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 117
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 012 00	PRI FLIGHT COMPUTERS (EICAS CAUTION)	(continued)	
		27-15006	27-02 TASK 857
		27-15007	27-02 TASK 858
		27-15008	27-02 TASK 859
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-17002	27-02 TASK 814
		27-17003	27-02 TASK 909
		27-17004	27-02 TASK 910
		27-17005	27-02 TASK 911
		27-17006	27-02 TASK 912
		27-17007	27-02 TASK 913
		27-17008	27-02 TASK 914
		27-17009	27-02 TASK 915
		27-17010	27-02 TASK 888
		27-17011	27-02 TASK 953
		27-17012	27-02 TASK 954
		27-17013	27-02 TASK 955
		27-17014	27-02 TASK 956
		27-17015	27-02 TASK 957
		27-17016	27-02 TASK 958
		27-17017	27-02 TASK 959
		27-19101	27-02 TASK 974
		27-19201	27-02 TASK 979
		27-19301	27-02 TASK 983
		31-50007	31-44 TASK 821
		31-50008	31-44 TASK 822
		31-50017	31-44 TASK 823
		31-50018	31-44 TASK 824
		31-50027	31-44 TASK 825
		31-50028	31-44 TASK 826
		31-50201	31-43 TASK 852
		31-50202	31-43 TASK 853
		31-50418	31-44 TASK 885

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 118
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 012 00	PRI FLIGHT COMPUTERS (EICAS CAUTION)	(continued)	
		31-50427	31-44 TASK 886
		31-50428	31-44 TASK 887
		31-50437	31-44 TASK 888
		31-50438	31-44 TASK 889
		31-50447	31-44 TASK 890
		31-50448	31-44 TASK 891
		31-52013	31-43 TASK 866
		31-52014	31-43 TASK 867
		31-52101	31-41 TASK 817
		31-52112	31-41 TASK 820
		31-52121	31-41 TASK 821
		31-52122	31-41 TASK 822
		31-52601	31-41 TASK 832
		31-52602	31-41 TASK 833
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54101	31-41 TASK 834
		31-54102	31-41 TASK 835
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-54601	31-41 TASK 840
		31-54602	31-41 TASK 841
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56102	31-41 TASK 845
		31-56111	31-41 TASK 846
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-56601	31-41 TASK 842
		31-56602	31-41 TASK 843
		31-58013	31-43 TASK 872
		31-58014	31-43 TASK 873
		31-58101	31-41 TASK 852
		31-58102	31-41 TASK 853

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 119
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 012 00	PRI FLIGHT COMPUTERS (EICAS CAUTION)	(continued)	
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-58601	31-41 TASK 992
		31-58602	31-41 TASK 993
		31-61031	31-41 TASK 862
		31-61032	31-41 TASK 891
		31-61041	31-43 TASK 835
		31-61042	31-43 TASK 836
		31-61051	31-43 TASK 837
		31-61052	31-43 TASK 838
		31-61061	31-43 TASK 839
		31-61062	31-43 TASK 840
		31-61111	31-43 TASK 856
		31-61112	31-43 TASK 856
		31-61113	31-43 TASK 856
		31-61114	31-43 TASK 856
		31-61115	31-43 TASK 856
		31-61116	31-43 TASK 856
		31-61117	31-43 TASK 856
		31-61118	31-43 TASK 856
		31-85351	31-98 TASK 801
		NONE	27-02 TASK 989
270 013 00	PFC CONTROL LANES (EICAS STATUS)	27-14000	27-02 TASK 812
		27-14001	27-02 TASK 886
		27-14002	27-02 TASK 887
		27-14003	27-02 TASK 804
		27-14004	27-02 TASK 860
		27-14005	27-02 TASK 861
		27-14006	27-02 TASK 935
		27-14007	27-02 TASK 936
		27-14008	27-02 TASK 937
		27-14009	27-02 TASK 925
		27-14010	27-02 TASK 926
		27-14011	27-02 TASK 927

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 120
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 013 00	PFC CONTROL LANES (EICAS STATUS)	(continued)	
		27-14012	27-02 TASK 938
		27-14013	27-02 TASK 939
		27-14014	27-02 TASK 940
		27-14015	27-02 TASK 928
		27-14016	27-02 TASK 929
		27-14017	27-02 TASK 930
		27-14044	27-02 TASK 992
		27-14045	27-02 TASK 993
		27-14046	27-02 TASK 994
		27-14047	27-02 TASK 995
		27-14048	27-02 TASK 996
		27-14049	27-02 TASK 997
		27-14050	27-02 TASK 998
		27-14051	27-02 TASK 999
		27-14052	27-02 TASK A00
		27-14053	27-02 TASK A01
		27-14054	27-02 TASK A02
		27-14055	27-02 TASK A03
		27-14056	27-02 TASK A04
		27-14057	27-02 TASK A05
		27-14058	27-02 TASK A06
		27-14059	27-02 TASK A07
		27-14060	27-02 TASK A08
		27-14061	27-02 TASK A09
		27-14062	27-02 TASK A10
		27-14063	27-02 TASK A11
		27-14064	27-02 TASK A12
		27-14065	27-02 TASK A13
		27-14066	27-02 TASK A14
		27-14067	27-02 TASK A15
		27-14068	27-02 TASK A16
		27-14069	27-02 TASK A17
		27-14070	27-02 TASK A18
		27-15000	27-02 TASK 803
		27-15001	27-02 TASK 852

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 121
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 013 00	PFC CONTROL LANES (EICAS STATUS)	(continued)	
		27-15002	27-02 TASK 853
		27-15003	27-02 TASK 854
		27-15004	27-02 TASK 855
		27-15005	27-02 TASK 856
		27-15006	27-02 TASK 857
		27-15007	27-02 TASK 858
		27-15008	27-02 TASK 859
270 014 00	PFC CHANNEL (EICAS STATUS)	23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		27-14018	27-02 TASK 813
		27-14019	27-02 TASK 941
		27-14020	27-02 TASK 942
		27-14025	27-02 TASK 943
		27-14026	27-02 TASK 944
		27-14027	27-02 TASK 945
		27-15000	27-02 TASK 803
		27-15001	27-02 TASK 852
		27-15002	27-02 TASK 853
		27-15003	27-02 TASK 854
		27-15004	27-02 TASK 855
		27-15005	27-02 TASK 856
		27-15006	27-02 TASK 857
		27-15007	27-02 TASK 858
		27-15008	27-02 TASK 859
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-19101	27-02 TASK 974
		27-19201	27-02 TASK 979
		27-19301	27-02 TASK 983
270 015 00	PFCS INTERFACE (EICAS STATUS)	21-16205	21-25 TASK 823
		23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 122
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		23-81004	23-91 TASK 804
		23-81005	23-91 TASK 805
		23-81006	23-91 TASK 806
		23-81007	23-91 TASK 807
		24-11780	24-53 TASK 805
		24-11781	24-51 TASK 837
		24-11784	24-51 TASK 836
		24-11785	24-51 TASK 836
		24-11786	24-51 TASK 833
		24-11787	24-32 TASK 817
		24-11790	24-08 TASK 833
		24-11793	24-08 TASK 834
		24-11795	24-08 TASK 804
		24-11796	24-08 TASK 804
		24-12051	24-32 TASK 819
		24-12056	24-32 TASK 820
		24-12057	24-08 TASK 836
		24-12122	24-08 TASK 835
		24-12124	24-51 TASK 840
		24-12125	24-51 TASK 841
		24-12126	24-51 TASK 841
		24-12127	24-51 TASK 842
		24-12800	24-08 TASK 805
		24-12801	24-08 TASK 805
		24-13801	24-61 TASK 805
		24-13814	24-33 TASK 817
		24-13815	24-61 TASK 806
		24-13816	24-32 TASK 831
		24-13817	24-33 TASK 818
		24-13818	24-53 TASK 807
		24-18801	24-09 TASK 806
		24-18802	24-09 TASK 807
		24-46000	24-25 TASK 866
		24-46010	24-25 TASK 867
		24-50201	24-35 TASK 801

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 123
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		24-50202	24-35 TASK 801
		24-50203	24-35 TASK 801
		24-50211	24-35 TASK 801
		24-50212	24-35 TASK 801
		24-50213	24-35 TASK 801
		24-50223	24-35 TASK 808
		24-78841	24-08 TASK 860
		24-78842	24-08 TASK 862
		24-78861	24-08 TASK 861
		24-78862	24-08 TASK 863
		27-10804	27-21 TASK 870
		27-10805	27-21 TASK 871
		27-13032	27-02 TASK 801
		27-13033	27-02 TASK 837
		27-13034	27-02 TASK 838
		27-13035	27-02 TASK 839
		27-13036	27-02 TASK 840
		27-13037	27-02 TASK 841
		27-13038	27-02 TASK 842
		27-13039	27-02 TASK 843
		27-13040	27-02 TASK 844
		27-13066	27-02 TASK A22
		27-13067	27-02 TASK A23
		27-13068	27-02 TASK A24
		27-13069	27-02 TASK A25
		27-13070	27-31 TASK 899
		27-13071	27-31 TASK 900
		27-13072	27-31 TASK 901
		27-13073	27-31 TASK 902
		27-13074	27-31 TASK 903
		27-14018	27-02 TASK 813
		27-14019	27-02 TASK 941
		27-14020	27-02 TASK 942
		27-14024	27-02 TASK 806
		27-14025	27-02 TASK 943

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 124
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		27-14026	27-02 TASK 944
		27-14027	27-02 TASK 945
		27-14030	27-02 TASK 905
		27-14031	27-02 TASK 906
		27-14032	27-02 TASK 907
		27-14033	27-02 TASK 908
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-17031	27-61 TASK 842
		27-17032	27-61 TASK 843
		27-17033	27-61 TASK 844
		27-17034	27-61 TASK 845
		27-17035	27-61 TASK 846
		27-17036	27-61 TASK 847
		27-18510	27-02 TASK 894
		27-18550	27-02 TASK 894
		27-18560	27-02 TASK 894
		27-18811	27-02 TASK 901
		27-18822	27-02 TASK 919
		27-18830	27-02 TASK 898
		27-18833	27-02 TASK 920
		27-18850	27-61 TASK 829
		27-18910	27-02 TASK 896
		27-19101	27-02 TASK 974
		27-19104	27-02 TASK 975
		27-19150	27-02 TASK 902
		27-19160	27-02 TASK 902
		27-19190	27-02 TASK 902
		27-19201	27-02 TASK 979
		27-19230	27-02 TASK 903
		27-19240	27-02 TASK 924
		27-19270	27-02 TASK 921
		27-19280	27-02 TASK 922
		27-19301	27-02 TASK 983

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 125
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		27-19307	27-02 TASK 984
		27-19350	27-02 TASK 923
		27-19390	27-02 TASK 921
		27-19430	27-02 TASK 922
		27-19510	27-02 TASK 904
		27-19830	27-02 TASK 923
		27-19870	27-02 TASK 921
		27-19910	27-02 TASK 922
		27-19950	27-02 TASK 923
		27-20251	27-51 TASK 863
		27-20252	27-52 TASK 809
		27-20261	27-51 TASK 809
		27-20262	27-52 TASK 810
		27-20271	27-51 TASK 810
		27-20272	27-52 TASK 811
		27-20691	27-51 TASK 811
		27-20692	27-52 TASK 812
		27-20701	27-51 TASK 812
		27-20702	27-52 TASK 813
		27-20711	27-51 TASK 813
		27-20712	27-52 TASK 814
		27-20891	27-51 TASK 823
		27-20892	27-52 TASK 826
		27-21161	27-81 TASK 814
		27-21162	27-82 TASK 815
		27-21171	27-81 TASK 815
		27-21172	27-82 TASK 816
		27-21181	27-81 TASK 816
		27-21182	27-82 TASK 817
		27-21241	27-51 TASK 838
		27-21242	27-52 TASK 832
		27-21271	27-51 TASK 867
		27-21272	27-52 TASK 834
		27-28801	27-51 TASK 841
		27-28802	27-52 TASK 835

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 126
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		27-28841	27-51 TASK 842
		27-28851	27-51 TASK 869
		27-28852	27-52 TASK 837
		27-28862	27-52 TASK 836
		29-10810	29-11 TASK 835
		29-10820	29-11 TASK 805
		29-10870	29-11 TASK 874
		29-10880	29-11 TASK 854
		29-10980	29-11 TASK 908
		29-11060	29-11 TASK 928
		29-11070	29-11 TASK 928
		29-11080	29-11 TASK 928
		29-11090	29-11 TASK 928
		29-18891	29-11 TASK 839
		29-18892	29-11 TASK 878
		29-18893	29-11 TASK 913
		29-18894	29-11 TASK 914
		30-36121	30-31 TASK 801
		30-36122	30-31 TASK 802
		30-36123	30-31 TASK 803
		30-36421	30-31 TASK 804
		30-36423	30-31 TASK 805
		30-36521	30-31 TASK 806
		30-36523	30-31 TASK 810
		30-36641	30-31 TASK 807
		30-36642	30-31 TASK 808
		30-36643	30-31 TASK 809
		31-14011	31-09 TASK 812
		31-14012	31-09 TASK 813
		31-14013	31-09 TASK 814
		31-14014	31-09 TASK 815
		31-14015	31-09 TASK 816
		31-14016	31-09 TASK 817
		31-14017	31-09 TASK 818
		31-14018	31-09 TASK 818

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 127
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		31-14051	31-09 TASK 821
		31-14052	31-09 TASK 822
		31-14053	31-09 TASK 823
		31-14054	31-09 TASK 824
		31-14055	31-09 TASK 825
		31-14056	31-09 TASK 826
		31-14057	31-09 TASK 827
		31-14058	31-09 TASK 827
		31-17437	31-09 TASK 835
		31-17438	31-09 TASK 836
		31-17639	31-10 TASK 814
		31-17640	31-10 TASK 815
		31-17905	31-07 TASK 801
		31-17906	31-07 TASK 802
		31-17907	31-07 TASK 803
		31-17908	31-07 TASK 804
		31-17937	31-07 TASK 827
		31-17938	31-07 TASK 828
		31-17939	31-07 TASK 829
		31-17940	31-07 TASK 830
		31-17941	31-07 TASK 831
		31-17942	31-07 TASK 832
		31-17943	31-07 TASK 833
		31-17944	31-07 TASK 834
		31-18801	31-08 TASK 810
		31-18802	31-08 TASK 811
		31-18803	31-08 TASK 812
		31-18804	31-08 TASK 813
		31-18841	31-08 TASK 814
		31-18842	31-08 TASK 814
		31-18863	31-08 TASK 816
		31-18864	31-08 TASK 817
		31-50007	31-44 TASK 821
		31-50008	31-44 TASK 822
		31-50011	31-44 TASK 801

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 128
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		31-50012	31-44 TASK 802
		31-50017	31-44 TASK 823
		31-50018	31-44 TASK 824
		31-50027	31-44 TASK 825
		31-50028	31-44 TASK 826
		31-50091	31-44 TASK 819
		31-50092	31-44 TASK 820
		31-50201	31-43 TASK 852
		31-50202	31-43 TASK 853
		31-50418	31-44 TASK 885
		31-50427	31-44 TASK 886
		31-50428	31-44 TASK 887
		31-50437	31-44 TASK 888
		31-50438	31-44 TASK 889
		31-50447	31-44 TASK 890
		31-50448	31-44 TASK 891
		31-51013	31-44 TASK 863
		31-51023	31-44 TASK 865
		31-51024	31-44 TASK 866
		31-51025	31-43 TASK 803
		31-51026	31-43 TASK 804
		31-51033	31-44 TASK 869
		31-51034	31-44 TASK 870
		31-51043	31-44 TASK 871
		31-51044	31-44 TASK 872
		31-51141	31-44 TASK 827
		31-51143	31-44 TASK 831
		31-51341	31-44 TASK 833
		31-51343	31-44 TASK 835
		31-51411	34-61 TASK 913
		31-51412	34-61 TASK 914
		31-51413	34-61 TASK 815
		31-51414	34-61 TASK 889
		31-51421	34-61 TASK 888
		31-51422	34-61 TASK 814

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 129
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		31-51423	34-61 TASK 815
		31-51424	34-61 TASK 889
		31-51531	31-44 TASK 837
		31-51532	31-44 TASK 838
		31-51533	31-44 TASK 839
		31-51534	31-44 TASK 840
		31-51731	31-44 TASK 841
		31-51732	31-44 TASK 842
		31-51733	31-44 TASK 843
		31-51734	31-44 TASK 844
		31-52013	31-43 TASK 866
		31-52014	31-43 TASK 867
		31-52101	31-41 TASK 817
		31-52112	31-41 TASK 820
		31-52121	31-41 TASK 821
		31-52122	31-41 TASK 822
		31-52601	31-41 TASK 832
		31-52602	31-41 TASK 833
		31-53401	31-41 TASK 832
		31-53402	31-41 TASK 833
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54101	31-41 TASK 834
		31-54102	31-41 TASK 835
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-54601	31-41 TASK 840
		31-54602	31-41 TASK 841
		31-55401	31-41 TASK 840
		31-55402	31-41 TASK 841
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56102	31-41 TASK 845
		31-56104	31-45 TASK 811
		31-56111	31-41 TASK 846

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 130
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-56601	31-41 TASK 842
		31-56602	31-41 TASK 843
		31-58013	31-43 TASK 872
		31-58014	31-43 TASK 873
		31-58101	31-41 TASK 852
		31-58102	31-41 TASK 853
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-58601	31-41 TASK 992
		31-58602	31-41 TASK 993
		31-59401	31-41 TASK 992
		31-59402	31-41 TASK 993
		31-61011	31-43 TASK 861
		31-61012	31-43 TASK 862
		31-61020	31-43 TASK 863
		31-61031	31-41 TASK 862
		31-61032	31-41 TASK 891
		31-61041	31-43 TASK 835
		31-61042	31-43 TASK 836
		31-61051	31-43 TASK 837
		31-61052	31-43 TASK 838
		31-61061	31-43 TASK 839
		31-61062	31-43 TASK 840
		31-61071	31-43 TASK 841
		31-61072	31-43 TASK 842
		31-61111	31-43 TASK 856
		31-61112	31-43 TASK 856
		31-61113	31-43 TASK 856
		31-61114	31-43 TASK 856
		31-61115	31-43 TASK 856
		31-61116	31-43 TASK 856
		31-61117	31-43 TASK 856
		31-61118	31-43 TASK 856

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 131
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		31-62011	31-43 TASK 843
		31-62020	31-43 TASK 845
		31-62071	31-43 TASK 850
		31-68801	31-43 TASK 892
		31-68802	31-43 TASK 893
		31-68811	31-42 TASK 908
		31-68832	31-42 TASK 908
		31-69101	31-42 TASK 801
		31-69102	31-42 TASK 801
		31-69117	31-42 TASK 806
		31-69118	31-42 TASK 806
		31-69201	31-42 TASK 809
		31-69202	31-42 TASK 809
		31-69219	31-42 TASK 814
		31-69220	31-42 TASK 814
		31-69301	31-42 TASK 817
		31-69302	31-42 TASK 817
		31-69317	31-42 TASK 822
		31-69318	31-42 TASK 822
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69433	31-42 TASK 838
		31-69434	31-42 TASK 838
		31-69439	31-42 TASK 840
		31-69440	31-42 TASK 840
		31-69496	31-42 TASK 915
		31-69497	31-42 TASK 915
		31-69501	31-42 TASK 852
		31-69502	31-42 TASK 852
		31-69533	31-42 TASK 854
		31-69534	31-42 TASK 854
		31-69535	31-42 TASK 854
		31-69536	31-42 TASK 854
		31-69539	31-42 TASK 855
		31-69540	31-42 TASK 855

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 132
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		31-69541	31-42 TASK 855
		31-69542	31-42 TASK 855
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		31-69635	31-42 TASK 868
		31-69636	31-42 TASK 868
		31-69641	31-42 TASK 870
		31-69642	31-42 TASK 870
		31-70011	31-51 TASK 801
		31-70012	31-51 TASK 821
		31-70021	31-51 TASK 802
		31-70022	31-51 TASK 822
		31-78801	31-51 TASK 801
		31-78802	31-51 TASK 821
		31-78841	31-51 TASK 825
		31-78851	31-51 TASK 826
		31-78852	31-51 TASK 898
		31-78862	31-51 TASK 827
		31-79401	31-51 TASK 804
		31-79402	31-51 TASK 805
		31-79437	31-51 TASK 815
		31-79439	31-51 TASK 816
		31-79501	31-51 TASK 836
		31-79502	31-51 TASK 837
		31-79503	31-51 TASK 838
		31-79504	31-51 TASK 839
		31-79537	31-51 TASK 852
		31-79539	31-51 TASK 854
		31-79542	31-51 TASK 857
		31-79544	31-51 TASK 859
		31-79603	31-51 TASK 860
		31-79604	31-51 TASK 861
		31-79642	31-51 TASK 872
		31-79644	31-51 TASK 873
		31-89417	31-42 TASK 915

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 133
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		31-89418	31-42 TASK 915
		31-89617	31-42 TASK 916
		31-89618	31-42 TASK 916
		31-89619	31-42 TASK 916
		31-89620	31-42 TASK 916
		32-21000	32-09 TASK 807
		32-21001	32-09 TASK 808
		32-21100	32-09 TASK 802
		32-21101	32-09 TASK 801
		32-21300	32-09 TASK 803
		32-21301	32-09 TASK 804
		32-22000	32-09 TASK 809
		32-22001	32-09 TASK 809
		32-22100	32-09 TASK 809
		32-22101	32-09 TASK 809
		32-28801	32-09 TASK 821
		32-28802	32-09 TASK 822
		32-28891	32-09 TASK 823
		32-28892	32-09 TASK 824
		34-25101	34-11 TASK 801
		34-25102	34-11 TASK 802
		34-25103	34-11 TASK 803
		34-25201	34-11 TASK 804
		34-25202	34-11 TASK 805
		34-25203	34-11 TASK 806
		34-25601	34-21 TASK 808
		34-25603	34-21 TASK 885
		34-25800	34-21 TASK 809
		34-26101	34-21 TASK 810
		34-26102	34-21 TASK 839
		34-26103	34-21 TASK 840
		34-26201	34-21 TASK 843
		34-26202	34-21 TASK 844
		34-26203	34-21 TASK 845
		34-28801	34-21 TASK 848

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 134
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		34-28810	34-21 TASK 849
		34-28813	34-21 TASK 813
		34-28816	34-21 TASK 814
		34-28824	34-21 TASK 850
		34-28827	34-21 TASK 851
		34-28830	34-21 TASK 852
		34-28835	34-21 TASK 853
		34-28838	34-21 TASK 854
		34-29101	34-21 TASK 893
		34-29102	34-21 TASK 815
		34-29105	34-21 TASK 816
		34-29107	34-21 TASK 817
		34-29115	34-21 TASK 857
		34-29120	34-21 TASK 894
		34-29201	34-21 TASK 858
		34-29202	34-21 TASK 859
		34-29204	34-21 TASK 860
		34-29216	34-21 TASK 862
		34-29301	34-21 TASK 895
		34-29303	34-21 TASK 864
		34-29306	34-21 TASK 865
		34-29308	34-21 TASK 866
		34-29317	34-21 TASK 869
		34-29320	34-21 TASK 896
		34-30700	34-21 TASK 870
		34-30711	34-21 TASK 818
		34-30712	34-21 TASK 871
		34-30713	34-21 TASK 872
		34-30760	34-21 TASK 819
		34-31601	34-21 TASK 821
		34-32601	34-21 TASK 822
		34-32803	34-21 TASK 822
		34-33800	34-21 TASK 886
		34-34603	34-21 TASK 887
		34-35603	34-21 TASK 888

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 135
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		34-36800	34-21 TASK 890
		34-38310	34-21 TASK 819
		34-38801	34-21 TASK 874
		34-38820	34-21 TASK 898
		34-39101	34-21 TASK 825
		34-39103	34-21 TASK 826
		34-39106	34-21 TASK 827
		34-39111	34-21 TASK 828
		34-39201	34-21 TASK 871
		34-39204	34-21 TASK 876
		34-39207	34-21 TASK 877
		34-39301	34-21 TASK 879
		34-39305	34-21 TASK 880
		34-39308	34-21 TASK 881
		34-39312	34-21 TASK 882
		34-71011	34-61 TASK 905
		34-71012	34-61 TASK 906
		34-71060	34-90 TASK 801
		73-03131	73-28 TASK 831
		73-03132	73-28 TASK 837
		73-07011	73-34 TASK 801
		73-07012	73-34 TASK 801
		73-07021	73-34 TASK 802
		73-07022	73-34 TASK 802
		73-07041	73-34 TASK 803
		73-07042	73-34 TASK 803
		73-07051	73-34 TASK 804
		73-07052	73-34 TASK 804
		73-07071	73-34 TASK 805
		73-07072	73-34 TASK 805
		73-07081	73-34 TASK 806
		73-07082	73-34 TASK 806
		73-07091	73-28 TASK 836
		73-07092	73-28 TASK 836
		73-07121	73-28 TASK 835

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 136
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		73-07122	73-28 TASK 835
		73-08025	73-27 TASK 870
		73-08026	73-27 TASK 870
		73-08031	73-28 TASK 845
		73-08032	73-28 TASK 846
		73-08045	73-27 TASK 873
		73-08046	73-27 TASK 874
		73-08055	73-27 TASK 875
		73-08056	73-27 TASK 876
		73-08061	73-28 TASK 834
		73-08062	73-28 TASK 834
		73-08071	73-28 TASK 841
		73-08072	73-28 TASK 841
		73-08081	73-27 TASK 827
		73-08082	73-27 TASK 827
		73-08091	73-28 TASK 855
		73-08092	73-28 TASK 855
		73-08105	73-27 TASK 871
		73-08106	73-27 TASK 871
		73-08111	73-28 TASK 856
		73-08112	73-28 TASK 856
		73-08122	73-98 TASK 801
		73-08125	73-28 TASK 844
		73-08126	73-28 TASK 844
		73-08245	73-27 TASK 873
		73-08246	73-27 TASK 874
		73-08255	73-27 TASK 875
		73-08256	73-27 TASK 876
		73-08281	73-27 TASK 827
		73-08282	73-27 TASK 827
		73-08311	73-98 TASK 801
		73-08312	73-98 TASK 801
		73-08445	73-27 TASK 873
		73-08446	73-27 TASK 874
		73-08455	73-27 TASK 875

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 137
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		73-08456	73-27 TASK 876
		73-08481	73-27 TASK 827
		73-08482	73-27 TASK 827
		73-08645	73-27 TASK 873
		73-08646	73-27 TASK 874
		73-08651	73-98 TASK 801
		73-08652	73-98 TASK 801
		73-08681	73-27 TASK 872
		73-08682	73-27 TASK 872
		73-13111	73-21 TASK 842
		73-13112	73-21 TASK 842
		73-14621	73-22 TASK 839
		73-14622	73-22 TASK 839
		73-23111	73-21 TASK 842
		73-23112	73-21 TASK 842
		73-24621	73-22 TASK 839
		73-24622	73-22 TASK 839
		73-34771	73-22 TASK 846
		73-34772	73-22 TASK 846
		73-34851	73-22 TASK 851
		73-34852	73-22 TASK 851
		73-35491	73-28 TASK 849
		73-35492	73-28 TASK 851
		76-15211	76-11 TASK 807
		76-15212	76-11 TASK 807
		76-25211	76-11 TASK 808
		76-25212	76-11 TASK 808
		76-35201	76-11 TASK 806
		76-35202	76-11 TASK 806
		77-14601	77-12 TASK 814
		77-14602	77-12 TASK 814
		77-14611	77-12 TASK 816
		77-14612	77-12 TASK 816
		77-14701	77-12 TASK 813
		77-14702	77-12 TASK 813

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 138
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		77-14901	77-12 TASK 815
		77-14902	77-12 TASK 815
		77-24601	77-12 TASK 814
		77-24602	77-12 TASK 814
		77-24611	77-12 TASK 816
		77-24612	77-12 TASK 816
		77-24701	77-12 TASK 813
		77-24702	77-12 TASK 813
		77-24901	77-12 TASK 815
		77-24902	77-12 TASK 815
		77-37911	77-12 TASK 817
		77-37912	77-12 TASK 818
		78-00011	78-34 TASK 836
		78-00012	78-34 TASK 837
		78-00021	78-34 TASK 838
		78-00022	78-34 TASK 838
		78-00031	78-34 TASK 838
		78-00032	78-34 TASK 838
		78-00041	78-34 TASK 838
		78-00042	78-34 TASK 838
		78-00051	78-34 TASK 838
		78-00052	78-34 TASK 838
		78-00061	78-34 TASK 839
		78-00062	78-34 TASK 840
		78-00071	78-34 TASK 841
		78-00072	78-34 TASK 842
		78-00081	78-34 TASK 843
		78-00082	78-34 TASK 843
		78-00091	78-34 TASK 843
		78-00092	78-34 TASK 843
		78-15041	78-36 TASK 857
		78-15042	78-36 TASK 858
		78-15061	78-36 TASK 859
		78-15062	78-36 TASK 860
		78-25041	78-36 TASK 861

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 139
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 015 00	PFCS INTERFACE (EICAS STATUS)	(continued)	
		78-25042	78-36 TASK 862
		78-25061	78-36 TASK 863
		78-25062	78-36 TASK 864
		78-32081	78-31 TASK 801
		78-32082	78-31 TASK 801
		78-32111	78-31 TASK 801
		78-32112	78-31 TASK 801
		78-35001	78-34 TASK 850
		78-35002	78-34 TASK 851
		78-35011	78-34 TASK 852
		78-35012	78-34 TASK 853
		78-35021	78-34 TASK 854
		78-35022	78-34 TASK 855
		78-35051	78-36 TASK 867
		78-35052	78-36 TASK 868
		78-35071	78-36 TASK 869
		78-35072	78-36 TASK 870
		78-35081	78-31 TASK 802
		78-35082	78-31 TASK 802
		78-35111	78-31 TASK 802
		78-35112	78-31 TASK 802
		NONE	27-02 TASK A26
270 031 00	PITCH DOWN AUTHORITY (EICAS CAUTION)		27-02 TASK 965
270 032 00	PITCH UP AUTHORITY (EICAS CAUTION)		27-02 TASK 965
270 051 00	FLT CONTROL VALVE (EICAS ADVISORY)	27-17019	27-02 TASK 815
		27-17020	27-02 TASK 889
		27-17021	27-02 TASK 890
		27-17022	27-02 TASK 816
		27-17023	27-02 TASK 891
		27-17024	27-02 TASK 892
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	21-16205	21-25 TASK 823
		23-41720	23-93 TASK 803
		23-42720	23-93 TASK 804
		23-43720	29-11 TASK 886

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 140
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81005	23-91 TASK 805
		23-81006	23-91 TASK 806
		23-81007	23-91 TASK 807
		24-11780	24-53 TASK 805
		24-11781	24-51 TASK 837
		24-11784	24-51 TASK 836
		24-11785	24-51 TASK 836
		24-11786	24-51 TASK 833
		24-11787	24-32 TASK 817
		24-11790	24-08 TASK 833
		24-11793	24-08 TASK 834
		24-11795	24-08 TASK 804
		24-11796	24-08 TASK 804
		24-12051	24-32 TASK 819
		24-12056	24-32 TASK 820
		24-12057	24-08 TASK 836
		24-12122	24-08 TASK 835
		24-12124	24-51 TASK 840
		24-12125	24-51 TASK 841
		24-12126	24-51 TASK 841
		24-12127	24-51 TASK 842
		24-12800	24-08 TASK 805
		24-12801	24-08 TASK 805
		24-13801	24-61 TASK 805
		24-13815	24-61 TASK 806
		24-18801	24-09 TASK 806
		24-18802	24-09 TASK 807
		24-78841	24-08 TASK 860
		24-78842	24-08 TASK 862
		24-78861	24-08 TASK 861
		24-78862	24-08 TASK 863

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 141
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		27-10000	27-41 TASK 826
		27-10001	27-41 TASK 801
		27-10002	27-41 TASK 827
		27-10003	27-41 TASK 802
		27-10004	27-41 TASK 828
		27-10005	27-41 TASK 803
		27-10006	27-41 TASK 845
		27-10007	27-41 TASK 829
		27-10008	27-41 TASK 804
		27-10017	27-41 TASK 806
		27-10018	27-41 TASK 833
		27-10019	27-41 TASK 834
		27-10020	27-41 TASK 819
		27-10021	27-41 TASK 835
		27-10022	27-41 TASK 814
		27-10023	27-41 TASK 836
		27-10024	27-41 TASK 815
		27-10025	27-41 TASK 846
		27-10026	27-41 TASK 847
		27-10100	27-31 TASK 868
		27-10101	27-31 TASK 801
		27-10102	27-31 TASK 869
		27-10103	27-31 TASK 870
		27-10800	27-21 TASK 804
		27-10801	27-21 TASK 832
		27-10802	27-21 TASK 805
		27-10804	27-21 TASK 870
		27-10805	27-21 TASK 871
		27-10807	27-21 TASK 868
		27-11000	27-41 TASK 807
		27-11001	27-41 TASK 810
		27-11002	27-41 TASK 811
		27-11003	27-41 TASK 820
		27-11004	27-41 TASK 837
		27-11005	27-41 TASK 838

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 142
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		27-11006	27-41 TASK 808
		27-11100	27-31 TASK 855
		27-11101	27-31 TASK 826
		27-11102	27-31 TASK 856
		27-11103	27-31 TASK 857
		27-11105	27-31 TASK 833
		27-11106	27-31 TASK 813
		27-11107	27-31 TASK 804
		27-11108	27-31 TASK 814
		27-11109	27-31 TASK 815
		27-11114	27-31 TASK 887
		27-11115	27-31 TASK 806
		27-11116	27-31 TASK 888
		27-11117	27-31 TASK 889
		27-11416	27-21 TASK 840
		27-12000	27-11 TASK 846
		27-12001	27-11 TASK 907
		27-12002	27-11 TASK 908
		27-12003	27-11 TASK 834
		27-12004	27-11 TASK 890
		27-12005	27-11 TASK 891
		27-12006	27-11 TASK 843
		27-12007	27-11 TASK 909
		27-12008	27-11 TASK 910
		27-12009	27-11 TASK 911
		27-12010	27-11 TASK 849
		27-12011	27-11 TASK 850
		27-12012	27-11 TASK 884
		27-12013	27-11 TASK 843
		27-12014	27-11 TASK 835
		27-12100	27-31 TASK 807
		27-12101	27-31 TASK 816
		27-12102	27-31 TASK 817
		27-12103	27-31 TASK 808
		27-12104	27-31 TASK 818

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 143
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		27-12105	27-31 TASK 819
		27-12106	27-31 TASK 809
		27-12107	27-31 TASK 858
		27-12108	27-31 TASK 859
		27-12109	27-31 TASK 860
		27-12110	27-31 TASK 861
		27-12111	27-31 TASK 862
		27-12112	27-31 TASK 863
		27-12113	27-31 TASK 809
		27-12200	27-21 TASK 813
		27-12201	27-21 TASK 858
		27-12202	27-21 TASK 859
		27-12203	27-21 TASK 860
		27-12204	27-21 TASK 814
		27-12205	27-21 TASK 814
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-13008	27-02 TASK 807
		27-13009	27-02 TASK 877
		27-13010	27-02 TASK 878
		27-13011	27-02 TASK 879
		27-13012	27-02 TASK 821
		27-13013	27-02 TASK 822
		27-13014	27-02 TASK 823
		27-13015	27-02 TASK 824
		27-13016	27-02 TASK 817
		27-13017	27-02 TASK 825
		27-13018	27-02 TASK 826
		27-13019	27-02 TASK 827
		27-13020	27-02 TASK 818
		27-13022	27-02 TASK 829
		27-13023	27-02 TASK 830
		27-13024	27-02 TASK 831

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 144
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		27-13025	27-02 TASK 819
		27-13026	27-02 TASK 832
		27-13027	27-02 TASK 833
		27-13041	27-02 TASK 845
		27-13044	27-02 TASK 848
		27-13046	27-02 TASK 805
		27-13047	27-02 TASK 862
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-14018	27-02 TASK 813
		27-14019	27-02 TASK 941
		27-14020	27-02 TASK 942
		27-14024	27-02 TASK 806
		27-14025	27-02 TASK 943
		27-14026	27-02 TASK 944
		27-14027	27-02 TASK 945
		27-14030	27-02 TASK 905
		27-14031	27-02 TASK 906
		27-14032	27-02 TASK 907
		27-14033	27-02 TASK 908
		27-15009	27-02 TASK 802
		27-15010	27-02 TASK 849
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15013	27-41 TASK 843
		27-15014	27-41 TASK 817
		27-15015	27-41 TASK 844
		27-15016	27-41 TASK 818
		27-15017	27-31 TASK 864
		27-15018	27-31 TASK 828
		27-15019	27-31 TASK 865
		27-15020	27-31 TASK 893
		27-15036	27-21 TASK 828
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 145
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		27-15102	27-02 TASK 948
		27-17022	27-02 TASK 816
		27-17023	27-02 TASK 891
		27-17024	27-02 TASK 892
		27-18811	27-02 TASK 901
		27-18822	27-02 TASK 919
		27-18833	27-02 TASK 920
		27-19101	27-02 TASK 974
		27-19104	27-02 TASK 975
		27-19110	27-02 TASK 976
		27-19201	27-02 TASK 979
		27-19237	27-02 TASK 982
		27-19301	27-02 TASK 983
		27-19307	27-02 TASK 984
		27-19310	27-02 TASK 985
		29-10150	29-11 TASK 894
		29-10330	29-11 TASK 827
		29-10740	29-11 TASK 867
		30-36121	30-31 TASK 801
		30-36122	30-31 TASK 802
		30-36123	30-31 TASK 803
		30-36421	30-31 TASK 804
		30-36423	30-31 TASK 805
		30-36521	30-31 TASK 806
		30-36523	30-31 TASK 810
		30-36641	30-31 TASK 807
		30-36642	30-31 TASK 808
		30-36643	30-31 TASK 809
		31-50007	31-44 TASK 821
		31-50008	31-44 TASK 822
		31-50011	31-44 TASK 801
		31-50012	31-44 TASK 802
		31-50017	31-44 TASK 823
		31-50018	31-44 TASK 824
		31-50027	31-44 TASK 825

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 146
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		31-50028	31-44 TASK 826
		31-50091	31-44 TASK 819
		31-50092	31-44 TASK 820
		31-50201	31-43 TASK 852
		31-50202	31-43 TASK 853
		31-50418	31-44 TASK 885
		31-50427	31-44 TASK 886
		31-50428	31-44 TASK 887
		31-50437	31-44 TASK 888
		31-50438	31-44 TASK 889
		31-50447	31-44 TASK 890
		31-50448	31-44 TASK 891
		31-51013	31-44 TASK 863
		31-51023	31-44 TASK 865
		31-51024	31-44 TASK 866
		31-51025	31-43 TASK 803
		31-51026	31-43 TASK 804
		31-51033	31-44 TASK 869
		31-51034	31-44 TASK 870
		31-51043	31-44 TASK 871
		31-51044	31-44 TASK 872
		31-51141	31-44 TASK 827
		31-51143	31-44 TASK 831
		31-51341	31-44 TASK 833
		31-51343	31-44 TASK 835
		31-51411	34-61 TASK 913
		31-51412	34-61 TASK 914
		31-51413	34-61 TASK 815
		31-51414	34-61 TASK 889
		31-51421	34-61 TASK 888
		31-51422	34-61 TASK 814
		31-51423	34-61 TASK 815
		31-51424	34-61 TASK 889
		31-51531	31-44 TASK 837
		31-51532	31-44 TASK 838

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 147
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		31-51533	31-44 TASK 839
		31-51534	31-44 TASK 840
		31-51731	31-44 TASK 841
		31-51732	31-44 TASK 842
		31-51733	31-44 TASK 843
		31-51734	31-44 TASK 844
		31-52013	31-43 TASK 866
		31-52014	31-43 TASK 867
		31-52101	31-41 TASK 817
		31-52112	31-41 TASK 820
		31-52121	31-41 TASK 821
		31-52122	31-41 TASK 822
		31-52601	31-41 TASK 832
		31-52602	31-41 TASK 833
		31-53401	31-41 TASK 832
		31-53402	31-41 TASK 833
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54101	31-41 TASK 834
		31-54102	31-41 TASK 835
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-54601	31-41 TASK 840
		31-54602	31-41 TASK 841
		31-55401	31-41 TASK 840
		31-55402	31-41 TASK 841
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56102	31-41 TASK 845
		31-56104	31-45 TASK 811
		31-56111	31-41 TASK 846
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-56601	31-41 TASK 842
		31-56602	31-41 TASK 843

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 148
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		31-58013	31-43 TASK 872
		31-58014	31-43 TASK 873
		31-58101	31-41 TASK 852
		31-58102	31-41 TASK 853
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-58601	31-41 TASK 992
		31-58602	31-41 TASK 993
		31-59401	31-41 TASK 992
		31-59402	31-41 TASK 993
		31-61011	31-43 TASK 861
		31-61012	31-43 TASK 862
		31-61020	31-43 TASK 863
		31-61031	31-41 TASK 862
		31-61032	31-41 TASK 891
		31-61041	31-43 TASK 835
		31-61042	31-43 TASK 836
		31-61051	31-43 TASK 837
		31-61052	31-43 TASK 838
		31-61061	31-43 TASK 839
		31-61062	31-43 TASK 840
		31-61071	31-43 TASK 841
		31-61072	31-43 TASK 842
		31-61111	31-43 TASK 856
		31-61112	31-43 TASK 856
		31-61113	31-43 TASK 856
		31-61114	31-43 TASK 856
		31-61115	31-43 TASK 856
		31-61116	31-43 TASK 856
		31-61117	31-43 TASK 856
		31-61118	31-43 TASK 856
		31-62011	31-43 TASK 843
		31-62020	31-43 TASK 845
		31-62071	31-43 TASK 850
		31-68801	31-43 TASK 892

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 149
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		31-68802	31-43 TASK 893
		31-68811	31-42 TASK 908
		31-68832	31-42 TASK 908
		31-69101	31-42 TASK 801
		31-69102	31-42 TASK 801
		31-69117	31-42 TASK 806
		31-69118	31-42 TASK 806
		31-69201	31-42 TASK 809
		31-69202	31-42 TASK 809
		31-69219	31-42 TASK 814
		31-69220	31-42 TASK 814
		31-69301	31-42 TASK 817
		31-69302	31-42 TASK 817
		31-69317	31-42 TASK 822
		31-69318	31-42 TASK 822
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69496	31-42 TASK 915
		31-69497	31-42 TASK 915
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		31-89417	31-42 TASK 915
		31-89418	31-42 TASK 915
		31-89617	31-42 TASK 916
		31-89618	31-42 TASK 916
		31-89619	31-42 TASK 916
		31-89620	31-42 TASK 916
		34-25101	34-11 TASK 801
		34-25102	34-11 TASK 802
		34-25103	34-11 TASK 803
		34-25201	34-11 TASK 804
		34-25202	34-11 TASK 805
		34-25203	34-11 TASK 806
		34-25601	34-21 TASK 808
		34-25603	34-21 TASK 885

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 150
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		34-25800	34-21 TASK 809
		34-26101	34-21 TASK 810
		34-26102	34-21 TASK 839
		34-26103	34-21 TASK 840
		34-26201	34-21 TASK 843
		34-26202	34-21 TASK 844
		34-26203	34-21 TASK 845
		34-28801	34-21 TASK 848
		34-28810	34-21 TASK 849
		34-28813	34-21 TASK 813
		34-28816	34-21 TASK 814
		34-28824	34-21 TASK 850
		34-28827	34-21 TASK 851
		34-28830	34-21 TASK 852
		34-28835	34-21 TASK 853
		34-28838	34-21 TASK 854
		34-29101	34-21 TASK 893
		34-29102	34-21 TASK 815
		34-29105	34-21 TASK 816
		34-29107	34-21 TASK 817
		34-29115	34-21 TASK 857
		34-29120	34-21 TASK 894
		34-29201	34-21 TASK 858
		34-29202	34-21 TASK 859
		34-29204	34-21 TASK 860
		34-29216	34-21 TASK 862
		34-29301	34-21 TASK 895
		34-29303	34-21 TASK 864
		34-29306	34-21 TASK 865
		34-29308	34-21 TASK 866
		34-29317	34-21 TASK 869
		34-29320	34-21 TASK 896
		34-30700	34-21 TASK 870
		34-30711	34-21 TASK 818
		34-30712	34-21 TASK 871

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 151
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		34-30713	34-21 TASK 872
		34-30760	34-21 TASK 819
		34-31601	34-21 TASK 821
		34-32601	34-21 TASK 822
		34-32803	34-21 TASK 822
		34-33800	34-21 TASK 886
		34-34603	34-21 TASK 887
		34-35603	34-21 TASK 888
		34-36800	34-21 TASK 890
		34-38310	34-21 TASK 819
		34-38801	34-21 TASK 874
		34-38820	34-21 TASK 898
		34-39101	34-21 TASK 825
		34-39103	34-21 TASK 826
		34-39106	34-21 TASK 827
		34-39111	34-21 TASK 828
		34-39118	34-21 TASK 829
		34-39201	34-21 TASK 871
		34-39204	34-21 TASK 876
		34-39207	34-21 TASK 877
		34-39301	34-21 TASK 879
		34-39305	34-21 TASK 880
		34-39308	34-21 TASK 881
		34-39312	34-21 TASK 882
		34-39318	34-21 TASK 884
		34-71011	34-61 TASK 905
		34-71012	34-61 TASK 906
		34-71060	34-90 TASK 801
		73-03011	73-28 TASK 809
		73-03012	73-28 TASK 809
		73-03131	73-28 TASK 831
		73-03132	73-28 TASK 837
		73-07011	73-34 TASK 801
		73-07012	73-34 TASK 801
		73-07021	73-34 TASK 802

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 152
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		73-07022	73-34 TASK 802
		73-07041	73-34 TASK 803
		73-07042	73-34 TASK 803
		73-07051	73-34 TASK 804
		73-07052	73-34 TASK 804
		73-07071	73-34 TASK 805
		73-07072	73-34 TASK 805
		73-07081	73-34 TASK 806
		73-07082	73-34 TASK 806
		73-07091	73-28 TASK 836
		73-07092	73-28 TASK 836
		73-07121	73-28 TASK 835
		73-07122	73-28 TASK 835
		73-08025	73-27 TASK 870
		73-08026	73-27 TASK 870
		73-08031	73-28 TASK 845
		73-08032	73-28 TASK 846
		73-08045	73-27 TASK 873
		73-08046	73-27 TASK 874
		73-08055	73-27 TASK 875
		73-08056	73-27 TASK 876
		73-08061	73-28 TASK 834
		73-08062	73-28 TASK 834
		73-08071	73-28 TASK 841
		73-08072	73-28 TASK 841
		73-08081	73-27 TASK 827
		73-08082	73-27 TASK 827
		73-08091	73-28 TASK 855
		73-08092	73-28 TASK 855
		73-08105	73-27 TASK 871
		73-08106	73-27 TASK 871
		73-08111	73-28 TASK 856
		73-08112	73-28 TASK 856
		73-08122	73-98 TASK 801
		73-08125	73-28 TASK 844

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 153
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		73-08126	73-28 TASK 844
		73-08245	73-27 TASK 873
		73-08246	73-27 TASK 874
		73-08255	73-27 TASK 875
		73-08256	73-27 TASK 876
		73-08281	73-27 TASK 827
		73-08282	73-27 TASK 827
		73-08311	73-98 TASK 801
		73-08312	73-98 TASK 801
		73-08445	73-27 TASK 873
		73-08446	73-27 TASK 874
		73-08455	73-27 TASK 875
		73-08456	73-27 TASK 876
		73-08481	73-27 TASK 827
		73-08482	73-27 TASK 827
		73-08645	73-27 TASK 873
		73-08646	73-27 TASK 874
		73-08651	73-98 TASK 801
		73-08652	73-98 TASK 801
		73-08681	73-27 TASK 872
		73-08682	73-27 TASK 872
		73-13111	73-21 TASK 842
		73-13112	73-21 TASK 842
		73-14621	73-22 TASK 839
		73-14622	73-22 TASK 839
		73-23111	73-21 TASK 842
		73-23112	73-21 TASK 842
		73-24621	73-22 TASK 839
		73-24622	73-22 TASK 839
		73-34771	73-22 TASK 846
		73-34772	73-22 TASK 846
		73-34851	73-22 TASK 851
		73-34852	73-22 TASK 851
		73-35491	73-28 TASK 849
		73-35492	73-28 TASK 851

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 154
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		76-15211	76-11 TASK 807
		76-15212	76-11 TASK 807
		76-25211	76-11 TASK 808
		76-25212	76-11 TASK 808
		76-35201	76-11 TASK 806
		76-35202	76-11 TASK 806
		77-14601	77-12 TASK 814
		77-14602	77-12 TASK 814
		77-14611	77-12 TASK 816
		77-14612	77-12 TASK 816
		77-14701	77-12 TASK 813
		77-14702	77-12 TASK 813
		77-14901	77-12 TASK 815
		77-14902	77-12 TASK 815
		77-24601	77-12 TASK 814
		77-24602	77-12 TASK 814
		77-24611	77-12 TASK 816
		77-24612	77-12 TASK 816
		77-24701	77-12 TASK 813
		77-24702	77-12 TASK 813
		77-24901	77-12 TASK 815
		77-24902	77-12 TASK 815
		77-37911	77-12 TASK 817
		77-37912	77-12 TASK 818
		78-00011	78-34 TASK 836
		78-00012	78-34 TASK 837
		78-00021	78-34 TASK 838
		78-00022	78-34 TASK 838
		78-00031	78-34 TASK 838
		78-00032	78-34 TASK 838
		78-00041	78-34 TASK 838
		78-00042	78-34 TASK 838
		78-00051	78-34 TASK 838
		78-00052	78-34 TASK 838
		78-00061	78-34 TASK 839

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 155
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 061 00	THRUST ASYM COMP (EICAS ADVISORY)	(continued)	
		78-00062	78-34 TASK 840
		78-00071	78-34 TASK 841
		78-00072	78-34 TASK 842
		78-00081	78-34 TASK 843
		78-00082	78-34 TASK 843
		78-00091	78-34 TASK 843
		78-00092	78-34 TASK 843
		78-15041	78-36 TASK 857
		78-15042	78-36 TASK 858
		78-15061	78-36 TASK 859
		78-15062	78-36 TASK 860
		78-25041	78-36 TASK 861
		78-25042	78-36 TASK 862
		78-25061	78-36 TASK 863
		78-25062	78-36 TASK 864
		78-32081	78-31 TASK 801
		78-32082	78-31 TASK 801
		78-32111	78-31 TASK 801
		78-32112	78-31 TASK 801
		78-35001	78-34 TASK 850
		78-35002	78-34 TASK 851
		78-35011	78-34 TASK 852
		78-35012	78-34 TASK 853
		78-35021	78-34 TASK 854
		78-35022	78-34 TASK 855
		78-35051	78-36 TASK 867
		78-35052	78-36 TASK 868
		78-35071	78-36 TASK 869
		78-35072	78-36 TASK 870
		78-35081	78-31 TASK 802
		78-35082	78-31 TASK 802
		78-35111	78-31 TASK 802
		78-35112	78-31 TASK 802
270 062 00	THRUST ASYM COMP (EICAS STATUS)	21-16205	21-25 TASK 823
		23-81001	23-91 TASK 801

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 156
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81005	23-91 TASK 805
		23-81006	23-91 TASK 806
		23-81007	23-91 TASK 807
		24-11780	24-53 TASK 805
		24-11781	24-51 TASK 837
		24-11784	24-51 TASK 836
		24-11785	24-51 TASK 836
		24-11786	24-51 TASK 833
		24-11787	24-32 TASK 817
		24-11790	24-08 TASK 833
		24-11793	24-08 TASK 834
		24-11795	24-08 TASK 804
		24-11796	24-08 TASK 804
		24-12051	24-32 TASK 819
		24-12056	24-32 TASK 820
		24-12057	24-08 TASK 836
		24-12122	24-08 TASK 835
		24-12124	24-51 TASK 840
		24-12125	24-51 TASK 841
		24-12126	24-51 TASK 841
		24-12127	24-51 TASK 842
		24-12800	24-08 TASK 805
		24-12801	24-08 TASK 805
		24-13801	24-61 TASK 805
		24-13815	24-61 TASK 806
		24-18801	24-09 TASK 806
		24-18802	24-09 TASK 807
		24-78841	24-08 TASK 860
		24-78842	24-08 TASK 862
		24-78861	24-08 TASK 861
		24-78862	24-08 TASK 863
		27-10800	27-21 TASK 804

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 157
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		27-10801	27-21 TASK 832
		27-10802	27-21 TASK 805
		27-10804	27-21 TASK 870
		27-10805	27-21 TASK 871
		27-10807	27-21 TASK 868
		27-11416	27-21 TASK 840
		27-13000	27-02 TASK 880
		27-13008	27-02 TASK 807
		27-13010	27-02 TASK 878
		27-13011	27-02 TASK 879
		27-13024	27-02 TASK 831
		27-13041	27-02 TASK 845
		27-13044	27-02 TASK 848
		27-13046	27-02 TASK 805
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-14018	27-02 TASK 813
		27-14019	27-02 TASK 941
		27-14020	27-02 TASK 942
		27-14024	27-02 TASK 806
		27-14025	27-02 TASK 943
		27-14026	27-02 TASK 944
		27-14027	27-02 TASK 945
		27-14030	27-02 TASK 905
		27-14031	27-02 TASK 906
		27-14032	27-02 TASK 907
		27-14033	27-02 TASK 908
		27-15009	27-02 TASK 802
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15036	27-21 TASK 828
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-18811	27-02 TASK 901

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 158
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		27-18822	27-02 TASK 919
		27-18833	27-02 TASK 920
		27-19101	27-02 TASK 974
		27-19104	27-02 TASK 975
		27-19201	27-02 TASK 979
		27-19301	27-02 TASK 983
		27-19307	27-02 TASK 984
		30-36121	30-31 TASK 801
		30-36122	30-31 TASK 802
		30-36123	30-31 TASK 803
		30-36421	30-31 TASK 804
		30-36423	30-31 TASK 805
		30-36521	30-31 TASK 806
		30-36523	30-31 TASK 810
		30-36641	30-31 TASK 807
		30-36642	30-31 TASK 808
		30-36643	30-31 TASK 809
		31-50007	31-44 TASK 821
		31-50008	31-44 TASK 822
		31-50011	31-44 TASK 801
		31-50012	31-44 TASK 802
		31-50017	31-44 TASK 823
		31-50018	31-44 TASK 824
		31-50027	31-44 TASK 825
		31-50028	31-44 TASK 826
		31-50091	31-44 TASK 819
		31-50092	31-44 TASK 820
		31-50201	31-43 TASK 852
		31-50202	31-43 TASK 853
		31-50418	31-44 TASK 885
		31-50427	31-44 TASK 886
		31-50428	31-44 TASK 887
		31-50437	31-44 TASK 888
		31-50438	31-44 TASK 889
		31-50447	31-44 TASK 890

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 159
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		31-50448	31-44 TASK 891
		31-51013	31-44 TASK 863
		31-51023	31-44 TASK 865
		31-51024	31-44 TASK 866
		31-51025	31-43 TASK 803
		31-51026	31-43 TASK 804
		31-51033	31-44 TASK 869
		31-51034	31-44 TASK 870
		31-51043	31-44 TASK 871
		31-51044	31-44 TASK 872
		31-51141	31-44 TASK 827
		31-51143	31-44 TASK 831
		31-51341	31-44 TASK 833
		31-51343	31-44 TASK 835
		31-51411	34-61 TASK 913
		31-51412	34-61 TASK 914
		31-51413	34-61 TASK 815
		31-51414	34-61 TASK 889
		31-51421	34-61 TASK 888
		31-51422	34-61 TASK 814
		31-51423	34-61 TASK 815
		31-51424	34-61 TASK 889
		31-51531	31-44 TASK 837
		31-51532	31-44 TASK 838
		31-51533	31-44 TASK 839
		31-51534	31-44 TASK 840
		31-51731	31-44 TASK 841
		31-51732	31-44 TASK 842
		31-51733	31-44 TASK 843
		31-51734	31-44 TASK 844
		31-52013	31-43 TASK 866
		31-52014	31-43 TASK 867
		31-52101	31-41 TASK 817
		31-52112	31-41 TASK 820
		31-52121	31-41 TASK 821

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 160
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		31-52122	31-41 TASK 822
		31-52601	31-41 TASK 832
		31-52602	31-41 TASK 833
		31-53401	31-41 TASK 832
		31-53402	31-41 TASK 833
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54101	31-41 TASK 834
		31-54102	31-41 TASK 835
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-54601	31-41 TASK 840
		31-54602	31-41 TASK 841
		31-55401	31-41 TASK 840
		31-55402	31-41 TASK 841
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56102	31-41 TASK 845
		31-56104	31-45 TASK 811
		31-56111	31-41 TASK 846
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-56601	31-41 TASK 842
		31-56602	31-41 TASK 843
		31-58013	31-43 TASK 872
		31-58014	31-43 TASK 873
		31-58101	31-41 TASK 852
		31-58102	31-41 TASK 853
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-58601	31-41 TASK 992
		31-58602	31-41 TASK 993
		31-59401	31-41 TASK 992
		31-59402	31-41 TASK 993
		31-61011	31-43 TASK 861

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 161
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		31-61012	31-43 TASK 862
		31-61020	31-43 TASK 863
		31-61031	31-41 TASK 862
		31-61032	31-41 TASK 891
		31-61041	31-43 TASK 835
		31-61042	31-43 TASK 836
		31-61051	31-43 TASK 837
		31-61052	31-43 TASK 838
		31-61061	31-43 TASK 839
		31-61062	31-43 TASK 840
		31-61071	31-43 TASK 841
		31-61072	31-43 TASK 842
		31-61111	31-43 TASK 856
		31-61112	31-43 TASK 856
		31-61113	31-43 TASK 856
		31-61114	31-43 TASK 856
		31-61115	31-43 TASK 856
		31-61116	31-43 TASK 856
		31-61117	31-43 TASK 856
		31-61118	31-43 TASK 856
		31-62011	31-43 TASK 843
		31-62020	31-43 TASK 845
		31-62071	31-43 TASK 850
		31-68801	31-43 TASK 892
		31-68802	31-43 TASK 893
		31-68811	31-42 TASK 908
		31-68832	31-42 TASK 908
		31-69101	31-42 TASK 801
		31-69102	31-42 TASK 801
		31-69117	31-42 TASK 806
		31-69118	31-42 TASK 806
		31-69201	31-42 TASK 809
		31-69202	31-42 TASK 809
		31-69219	31-42 TASK 814
		31-69220	31-42 TASK 814

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 162
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		31-69301	31-42 TASK 817
		31-69302	31-42 TASK 817
		31-69317	31-42 TASK 822
		31-69318	31-42 TASK 822
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69496	31-42 TASK 915
		31-69497	31-42 TASK 915
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		31-89417	31-42 TASK 915
		31-89418	31-42 TASK 915
		31-89617	31-42 TASK 916
		31-89618	31-42 TASK 916
		31-89619	31-42 TASK 916
		31-89620	31-42 TASK 916
		34-25101	34-11 TASK 801
		34-25102	34-11 TASK 802
		34-25103	34-11 TASK 803
		34-25201	34-11 TASK 804
		34-25202	34-11 TASK 805
		34-25203	34-11 TASK 806
		34-25601	34-21 TASK 808
		34-25603	34-21 TASK 885
		34-25800	34-21 TASK 809
		34-26101	34-21 TASK 810
		34-26102	34-21 TASK 839
		34-26103	34-21 TASK 840
		34-26201	34-21 TASK 843
		34-26202	34-21 TASK 844
		34-26203	34-21 TASK 845
		34-28801	34-21 TASK 848
		34-28810	34-21 TASK 849
		34-28813	34-21 TASK 813
		34-28816	34-21 TASK 814

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 163
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		34-28824	34-21 TASK 850
		34-28827	34-21 TASK 851
		34-28830	34-21 TASK 852
		34-28835	34-21 TASK 853
		34-28838	34-21 TASK 854
		34-29101	34-21 TASK 893
		34-29102	34-21 TASK 815
		34-29105	34-21 TASK 816
		34-29107	34-21 TASK 817
		34-29115	34-21 TASK 857
		34-29120	34-21 TASK 894
		34-29201	34-21 TASK 858
		34-29202	34-21 TASK 859
		34-29204	34-21 TASK 860
		34-29216	34-21 TASK 862
		34-29301	34-21 TASK 895
		34-29303	34-21 TASK 864
		34-29306	34-21 TASK 865
		34-29308	34-21 TASK 866
		34-29317	34-21 TASK 869
		34-29320	34-21 TASK 896
		34-30700	34-21 TASK 870
		34-30711	34-21 TASK 818
		34-30712	34-21 TASK 871
		34-30713	34-21 TASK 872
		34-30760	34-21 TASK 819
		34-31601	34-21 TASK 821
		34-32601	34-21 TASK 822
		34-32803	34-21 TASK 822
		34-33800	34-21 TASK 886
		34-34603	34-21 TASK 887
		34-35603	34-21 TASK 888
		34-36800	34-21 TASK 890
		34-38310	34-21 TASK 819
		34-38801	34-21 TASK 874

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 164
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		34-38820	34-21 TASK 898
		34-39101	34-21 TASK 825
		34-39103	34-21 TASK 826
		34-39106	34-21 TASK 827
		34-39111	34-21 TASK 828
		34-39201	34-21 TASK 871
		34-39204	34-21 TASK 876
		34-39207	34-21 TASK 877
		34-39301	34-21 TASK 879
		34-39305	34-21 TASK 880
		34-39308	34-21 TASK 881
		34-39312	34-21 TASK 882
		34-71011	34-61 TASK 905
		34-71012	34-61 TASK 906
		34-71060	34-90 TASK 801
		73-03011	73-28 TASK 809
		73-03012	73-28 TASK 809
		73-03131	73-28 TASK 831
		73-03132	73-28 TASK 837
		73-07011	73-34 TASK 801
		73-07012	73-34 TASK 801
		73-07021	73-34 TASK 802
		73-07022	73-34 TASK 802
		73-07041	73-34 TASK 803
		73-07042	73-34 TASK 803
		73-07051	73-34 TASK 804
		73-07052	73-34 TASK 804
		73-07071	73-34 TASK 805
		73-07072	73-34 TASK 805
		73-07081	73-34 TASK 806
		73-07082	73-34 TASK 806
		73-07091	73-28 TASK 836
		73-07092	73-28 TASK 836
		73-07121	73-28 TASK 835
		73-07122	73-28 TASK 835

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 165
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		73-08025	73-27 TASK 870
		73-08026	73-27 TASK 870
		73-08031	73-28 TASK 845
		73-08032	73-28 TASK 846
		73-08045	73-27 TASK 873
		73-08046	73-27 TASK 874
		73-08055	73-27 TASK 875
		73-08056	73-27 TASK 876
		73-08061	73-28 TASK 834
		73-08062	73-28 TASK 834
		73-08071	73-28 TASK 841
		73-08072	73-28 TASK 841
		73-08081	73-27 TASK 827
		73-08082	73-27 TASK 827
		73-08091	73-28 TASK 855
		73-08092	73-28 TASK 855
		73-08105	73-27 TASK 871
		73-08106	73-27 TASK 871
		73-08111	73-28 TASK 856
		73-08112	73-28 TASK 856
		73-08122	73-98 TASK 801
		73-08125	73-28 TASK 844
		73-08126	73-28 TASK 844
		73-08245	73-27 TASK 873
		73-08246	73-27 TASK 874
		73-08255	73-27 TASK 875
		73-08256	73-27 TASK 876
		73-08281	73-27 TASK 827
		73-08282	73-27 TASK 827
		73-08311	73-98 TASK 801
		73-08312	73-98 TASK 801
		73-08445	73-27 TASK 873
		73-08446	73-27 TASK 874
		73-08455	73-27 TASK 875
		73-08456	73-27 TASK 876

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 166
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		73-08481	73-27 TASK 827
		73-08482	73-27 TASK 827
		73-08645	73-27 TASK 873
		73-08646	73-27 TASK 874
		73-08651	73-98 TASK 801
		73-08652	73-98 TASK 801
		73-08681	73-27 TASK 872
		73-08682	73-27 TASK 872
		73-13111	73-21 TASK 842
		73-13112	73-21 TASK 842
		73-14621	73-22 TASK 839
		73-14622	73-22 TASK 839
		73-23111	73-21 TASK 842
		73-23112	73-21 TASK 842
		73-24621	73-22 TASK 839
		73-24622	73-22 TASK 839
		73-34771	73-22 TASK 846
		73-34772	73-22 TASK 846
		73-34851	73-22 TASK 851
		73-34852	73-22 TASK 851
		73-35491	73-28 TASK 849
		73-35492	73-28 TASK 851
		76-15211	76-11 TASK 807
		76-15212	76-11 TASK 807
		76-25211	76-11 TASK 808
		76-25212	76-11 TASK 808
		76-35201	76-11 TASK 806
		76-35202	76-11 TASK 806
		77-14601	77-12 TASK 814
		77-14602	77-12 TASK 814
		77-14611	77-12 TASK 816
		77-14612	77-12 TASK 816
		77-14701	77-12 TASK 813
		77-14702	77-12 TASK 813
		77-14901	77-12 TASK 815

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 167
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		77-14902	77-12 TASK 815
		77-24601	77-12 TASK 814
		77-24602	77-12 TASK 814
		77-24611	77-12 TASK 816
		77-24612	77-12 TASK 816
		77-24701	77-12 TASK 813
		77-24702	77-12 TASK 813
		77-24901	77-12 TASK 815
		77-24902	77-12 TASK 815
		77-37911	77-12 TASK 817
		77-37912	77-12 TASK 818
		78-00011	78-34 TASK 836
		78-00012	78-34 TASK 837
		78-00021	78-34 TASK 838
		78-00022	78-34 TASK 838
		78-00031	78-34 TASK 838
		78-00032	78-34 TASK 838
		78-00041	78-34 TASK 838
		78-00042	78-34 TASK 838
		78-00051	78-34 TASK 838
		78-00052	78-34 TASK 838
		78-00061	78-34 TASK 839
		78-00062	78-34 TASK 840
		78-00071	78-34 TASK 841
		78-00072	78-34 TASK 842
		78-00081	78-34 TASK 843
		78-00082	78-34 TASK 843
		78-00091	78-34 TASK 843
		78-00092	78-34 TASK 843
		78-15041	78-36 TASK 857
		78-15042	78-36 TASK 858
		78-15061	78-36 TASK 859
		78-15062	78-36 TASK 860
		78-25041	78-36 TASK 861
		78-25042	78-36 TASK 862

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 168
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 062 00	THRUST ASYM COMP (EICAS STATUS)	(continued)	
		78-25061	78-36 TASK 863
		78-25062	78-36 TASK 864
		78-32081	78-31 TASK 801
		78-32082	78-31 TASK 801
		78-32111	78-31 TASK 801
		78-32112	78-31 TASK 801
		78-35001	78-34 TASK 850
		78-35002	78-34 TASK 851
		78-35011	78-34 TASK 852
		78-35012	78-34 TASK 853
		78-35021	78-34 TASK 854
		78-35022	78-34 TASK 855
		78-35051	78-36 TASK 867
		78-35052	78-36 TASK 868
		78-35071	78-36 TASK 869
		78-35072	78-36 TASK 870
		78-35081	78-31 TASK 802
		78-35082	78-31 TASK 802
		78-35111	78-31 TASK 802
		78-35112	78-31 TASK 802
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	21-16205	21-25 TASK 823
		23-41110	23-93 TASK 801
		23-41120	23-93 TASK 803
		23-41130	23-93 TASK 801
		23-41140	23-93 TASK 803
		23-41340	23-93 TASK 803
		23-41360	23-93 TASK 801
		23-41710	23-93 TASK 801
		23-41720	23-93 TASK 803
		23-42110	23-93 TASK 802
		23-42120	23-93 TASK 804
		23-42130	23-93 TASK 802
		23-42140	23-93 TASK 804
		23-42340	23-93 TASK 804
		23-42360	23-93 TASK 802

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 169
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		23-42710	23-93 TASK 802
		23-42720	23-93 TASK 804
		23-43110	29-11 TASK 880
		23-43120	29-11 TASK 881
		23-43130	29-11 TASK 882
		23-43140	29-11 TASK 883
		23-43340	29-11 TASK 842
		23-43360	29-11 TASK 884
		23-43710	29-11 TASK 885
		23-43720	29-11 TASK 886
		23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81005	23-91 TASK 805
		23-81006	23-91 TASK 806
		23-81007	23-91 TASK 807
		24-11780	24-53 TASK 805
		24-11781	24-51 TASK 837
		24-11782	24-51 TASK 838
		24-11784	24-51 TASK 836
		24-11786	24-51 TASK 833
		24-11787	24-32 TASK 817
		24-11790	24-08 TASK 833
		24-11793	24-08 TASK 834
		24-11795	24-08 TASK 804
		24-11796	24-08 TASK 804
		24-12051	24-32 TASK 819
		24-12056	24-32 TASK 820
		24-12057	24-08 TASK 836
		24-12122	24-08 TASK 835
		24-12124	24-51 TASK 840
		24-12125	24-51 TASK 841
		24-12126	24-51 TASK 841
		24-12127	24-51 TASK 842

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 170
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		24-12128	24-51 TASK 843
		24-12800	24-08 TASK 805
		24-12801	24-08 TASK 805
		24-13801	24-61 TASK 805
		24-13814	24-33 TASK 817
		24-13815	24-61 TASK 806
		24-13816	24-32 TASK 831
		24-13817	24-33 TASK 818
		24-13818	24-53 TASK 807
		24-18801	24-09 TASK 806
		24-18802	24-09 TASK 807
		24-46000	24-25 TASK 866
		24-46010	24-25 TASK 867
		24-50201	24-35 TASK 801
		24-50202	24-35 TASK 801
		24-50203	24-35 TASK 801
		24-50211	24-35 TASK 801
		24-50212	24-35 TASK 801
		24-50213	24-35 TASK 801
		24-50241	24-35 TASK 802
		24-50242	24-35 TASK 802
		24-50243	24-35 TASK 802
		24-50261	24-35 TASK 804
		24-50262	24-35 TASK 804
		24-50263	24-35 TASK 806
		24-50271	24-35 TASK 807
		24-50273	24-35 TASK 807
		24-51001	24-35 TASK 805
		24-51002	24-35 TASK 805
		24-51003	24-35 TASK 805
		24-55001	24-35 TASK 810
		24-55002	24-35 TASK 810
		24-55003	24-35 TASK 810
		24-58811	24-35 TASK 803
		24-58823	24-35 TASK 803

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 171
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		24-58832	24-35 TASK 803
		24-78841	24-08 TASK 860
		24-78842	24-08 TASK 862
		24-78861	24-08 TASK 861
		24-78862	24-08 TASK 863
		27-10000	27-41 TASK 826
		27-10001	27-41 TASK 801
		27-10002	27-41 TASK 827
		27-10003	27-41 TASK 802
		27-10004	27-41 TASK 828
		27-10005	27-41 TASK 803
		27-10006	27-41 TASK 845
		27-10007	27-41 TASK 829
		27-10008	27-41 TASK 804
		27-10015	27-41 TASK 832
		27-10016	27-41 TASK 813
		27-10017	27-41 TASK 806
		27-10018	27-41 TASK 833
		27-10019	27-41 TASK 834
		27-10020	27-41 TASK 819
		27-10021	27-41 TASK 835
		27-10022	27-41 TASK 814
		27-10023	27-41 TASK 836
		27-10024	27-41 TASK 815
		27-10025	27-41 TASK 846
		27-10026	27-41 TASK 847
		27-10100	27-31 TASK 868
		27-10101	27-31 TASK 801
		27-10102	27-31 TASK 869
		27-10103	27-31 TASK 870
		27-10104	27-31 TASK 830
		27-10105	27-31 TASK 820
		27-10106	27-31 TASK 837
		27-10107	27-31 TASK 838
		27-10108	27-31 TASK 839

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 172
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-10109	27-31 TASK 840
		27-10110	27-31 TASK 821
		27-10111	27-31 TASK 841
		27-10112	27-31 TASK 842
		27-10113	27-31 TASK 843
		27-10114	27-31 TASK 844
		27-10115	27-31 TASK 845
		27-10116	27-31 TASK 846
		27-10117	27-31 TASK 822
		27-10118	27-31 TASK 847
		27-10119	27-31 TASK 848
		27-10120	27-31 TASK 849
		27-10121	27-31 TASK 850
		27-10122	27-31 TASK 851
		27-10123	27-31 TASK 852
		27-10124	27-31 TASK 802
		27-10125	27-31 TASK 886
		27-10128	27-31 TASK 823
		27-10129	27-31 TASK 853
		27-10130	27-31 TASK 824
		27-10131	27-31 TASK 854
		27-10200	27-11 TASK 801
		27-10201	27-11 TASK 802
		27-10202	27-11 TASK 803
		27-10203	27-11 TASK 804
		27-10204	27-11 TASK 905
		27-10205	27-11 TASK 844
		27-10206	27-11 TASK 880
		27-10207	27-11 TASK 881
		27-10208	27-11 TASK 860
		27-10209	27-11 TASK 828
		27-10210	27-11 TASK 861
		27-10211	27-11 TASK 862
		27-10212	27-11 TASK 886
		27-10213	27-11 TASK 887

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 173
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-10214	27-11 TASK 888
		27-10215	27-11 TASK 889
		27-10216	27-11 TASK 826
		27-10217	27-11 TASK 827
		27-10218	27-11 TASK 922
		27-10219	27-11 TASK 923
		27-10220	27-11 TASK 924
		27-10221	27-11 TASK 925
		27-10222	27-11 TASK 926
		27-10223	27-11 TASK 927
		27-10300	27-11 TASK 814
		27-10301	27-11 TASK 815
		27-10302	27-11 TASK 816
		27-10303	27-11 TASK 817
		27-10304	27-11 TASK 882
		27-10305	27-11 TASK 845
		27-10306	27-11 TASK 906
		27-10307	27-11 TASK 883
		27-10308	27-11 TASK 856
		27-10309	27-11 TASK 857
		27-10310	27-11 TASK 858
		27-10311	27-11 TASK 859
		27-10312	27-11 TASK 805
		27-10313	27-11 TASK 914
		27-10316	27-11 TASK 848
		27-10317	27-11 TASK 912
		27-10400	27-21 TASK 854
		27-10401	27-21 TASK 855
		27-10402	27-21 TASK 801
		27-10403	27-21 TASK 848
		27-10404	27-21 TASK 849
		27-10405	27-21 TASK 829
		27-10406	27-21 TASK 856
		27-10407	27-21 TASK 857
		27-10408	27-21 TASK 802

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 174
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-10409	27-21 TASK 850
		27-10410	27-21 TASK 851
		27-10411	27-21 TASK 830
		27-10412	27-21 TASK 839
		27-10413	27-21 TASK 861
		27-10414	27-21 TASK 862
		27-10415	27-21 TASK 803
		27-10417	27-21 TASK 826
		27-10418	27-21 TASK 803
		27-10419	27-21 TASK 803
		27-10420	27-21 TASK 839
		27-10421	27-21 TASK 861
		27-10422	27-21 TASK 862
		27-10423	27-21 TASK 803
		27-10424	27-21 TASK 839
		27-10425	27-21 TASK 861
		27-10426	27-21 TASK 862
		27-10427	27-21 TASK 803
		27-10428	27-21 TASK 839
		27-10429	27-21 TASK 861
		27-10430	27-21 TASK 862
		27-10431	27-21 TASK 803
		27-10432	27-21 TASK 839
		27-10433	27-21 TASK 861
		27-10434	27-21 TASK 862
		27-10435	27-21 TASK 803
		27-10436	27-21 TASK 839
		27-10437	27-21 TASK 861
		27-10438	27-21 TASK 862
		27-10439	27-21 TASK 839
		27-10440	27-21 TASK 861
		27-10441	27-21 TASK 862
		27-10442	27-21 TASK 803
		27-10443	27-21 TASK 839
		27-10444	27-21 TASK 861

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 175
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-10445	27-21 TASK 862
		27-10446	27-21 TASK 803
		27-10447	27-21 TASK 803
		27-10448	27-21 TASK 803
		27-10449	27-21 TASK 803
		27-10450	27-21 TASK 803
		27-10451	27-21 TASK 803
		27-10452	27-31 TASK 802
		27-10453	27-31 TASK 849
		27-10454	27-31 TASK 850
		27-10455	27-31 TASK 802
		27-10456	27-31 TASK 849
		27-10457	27-31 TASK 850
		27-10458	27-31 TASK 802
		27-10459	27-31 TASK 849
		27-10460	27-31 TASK 850
		27-10461	27-31 TASK 802
		27-10462	27-31 TASK 849
		27-10463	27-31 TASK 850
		27-10464	27-31 TASK 849
		27-10465	27-31 TASK 850
		27-10466	27-31 TASK 802
		27-10467	27-31 TASK 886
		27-10468	27-31 TASK 851
		27-10469	27-31 TASK 852
		27-10470	27-31 TASK 886
		27-10471	27-31 TASK 851
		27-10472	27-31 TASK 852
		27-10473	27-31 TASK 886
		27-10474	27-31 TASK 851
		27-10475	27-31 TASK 852
		27-10476	27-31 TASK 886
		27-10477	27-31 TASK 851
		27-10478	27-31 TASK 852
		27-10479	27-31 TASK 851

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 176
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-10480	27-31 TASK 852
		27-10481	27-31 TASK 886
		27-10482	27-11 TASK 805
		27-10483	27-11 TASK 856
		27-10484	27-11 TASK 857
		27-10485	27-11 TASK 805
		27-10486	27-11 TASK 856
		27-10487	27-11 TASK 857
		27-10488	27-11 TASK 805
		27-10489	27-11 TASK 914
		27-10490	27-11 TASK 858
		27-10491	27-11 TASK 859
		27-10492	27-11 TASK 914
		27-10493	27-11 TASK 858
		27-10494	27-11 TASK 859
		27-10495	27-11 TASK 914
		27-10500	27-61 TASK 801
		27-10501	27-61 TASK 802
		27-10502	27-61 TASK 803
		27-10503	27-61 TASK 841
		27-10504	27-61 TASK 804
		27-10505	27-61 TASK 805
		27-10506	27-61 TASK 806
		27-10507	27-61 TASK 807
		27-10508	27-61 TASK 808
		27-10509	27-61 TASK 809
		27-10510	27-61 TASK 810
		27-10511	27-61 TASK 811
		27-10512	27-61 TASK 812
		27-10513	27-61 TASK 813
		27-10514	27-61 TASK 828
		27-10700	27-31 TASK 825
		27-10701	27-31 TASK 831
		27-10702	27-31 TASK 803
		27-10703	27-31 TASK 812

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 177
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-10800	27-21 TASK 804
		27-10801	27-21 TASK 832
		27-10802	27-21 TASK 805
		27-10803	27-21 TASK 869
		27-11000	27-41 TASK 807
		27-11001	27-41 TASK 810
		27-11002	27-41 TASK 811
		27-11003	27-41 TASK 820
		27-11004	27-41 TASK 837
		27-11005	27-41 TASK 838
		27-11006	27-41 TASK 808
		27-11100	27-31 TASK 855
		27-11101	27-31 TASK 826
		27-11102	27-31 TASK 856
		27-11103	27-31 TASK 857
		27-11104	27-31 TASK 832
		27-11105	27-31 TASK 833
		27-11106	27-31 TASK 813
		27-11107	27-31 TASK 804
		27-11108	27-31 TASK 814
		27-11109	27-31 TASK 815
		27-11110	27-31 TASK 871
		27-11111	27-31 TASK 805
		27-11112	27-31 TASK 872
		27-11113	27-31 TASK 873
		27-11114	27-31 TASK 887
		27-11115	27-31 TASK 806
		27-11116	27-31 TASK 888
		27-11117	27-31 TASK 889
		27-11200	27-11 TASK 806
		27-11201	27-11 TASK 807
		27-11202	27-11 TASK 808
		27-11203	27-11 TASK 809
		27-11204	27-11 TASK 830
		27-11205	27-11 TASK 866

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 178
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-11206	27-11 TASK 810
		27-11207	27-11 TASK 811
		27-11208	27-11 TASK 812
		27-11209	27-11 TASK 813
		27-11210	27-11 TASK 868
		27-11211	27-11 TASK 832
		27-11212	27-11 TASK 869
		27-11213	27-11 TASK 870
		27-11300	27-11 TASK 818
		27-11301	27-11 TASK 819
		27-11302	27-11 TASK 820
		27-11303	27-11 TASK 821
		27-11304	27-11 TASK 831
		27-11305	27-11 TASK 867
		27-11306	27-11 TASK 822
		27-11307	27-11 TASK 823
		27-11308	27-11 TASK 824
		27-11309	27-11 TASK 825
		27-11310	27-11 TASK 863
		27-11311	27-11 TASK 829
		27-11312	27-11 TASK 864
		27-11313	27-11 TASK 865
		27-11314	27-11 TASK 871
		27-11315	27-11 TASK 833
		27-11316	27-11 TASK 872
		27-11317	27-11 TASK 873
		27-11400	27-21 TASK 818
		27-11401	27-21 TASK 819
		27-11402	27-21 TASK 807
		27-11403	27-21 TASK 820
		27-11404	27-21 TASK 821
		27-11405	27-21 TASK 808
		27-11406	27-21 TASK 809
		27-11407	27-21 TASK 822
		27-11408	27-21 TASK 823

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 179
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-11409	27-21 TASK 810
		27-11410	27-21 TASK 863
		27-11411	27-21 TASK 864
		27-11412	27-21 TASK 811
		27-11413	27-21 TASK 824
		27-11414	27-21 TASK 825
		27-11415	27-21 TASK 812
		27-11416	27-21 TASK 840
		27-11500	27-61 TASK 814
		27-11501	27-61 TASK 819
		27-11502	27-61 TASK 820
		27-11503	27-61 TASK 821
		27-11504	27-61 TASK 822
		27-11505	27-61 TASK 823
		27-11506	27-61 TASK 824
		27-11507	27-61 TASK 825
		27-11508	27-61 TASK 826
		27-11509	27-61 TASK 827
		27-11510	27-61 TASK 815
		27-11511	27-61 TASK 832
		27-11512	27-61 TASK 833
		27-11513	27-61 TASK 834
		27-12000	27-11 TASK 846
		27-12001	27-11 TASK 907
		27-12002	27-11 TASK 908
		27-12003	27-11 TASK 834
		27-12004	27-11 TASK 890
		27-12005	27-11 TASK 891
		27-12006	27-11 TASK 843
		27-12007	27-11 TASK 909
		27-12008	27-11 TASK 910
		27-12009	27-11 TASK 911
		27-12010	27-11 TASK 849
		27-12011	27-11 TASK 850
		27-12012	27-11 TASK 884

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 180
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-12013	27-11 TASK 843
		27-12100	27-31 TASK 807
		27-12101	27-31 TASK 816
		27-12102	27-31 TASK 817
		27-12103	27-31 TASK 808
		27-12104	27-31 TASK 818
		27-12105	27-31 TASK 819
		27-12106	27-31 TASK 809
		27-12107	27-31 TASK 858
		27-12108	27-31 TASK 859
		27-12109	27-31 TASK 860
		27-12110	27-31 TASK 861
		27-12111	27-31 TASK 862
		27-12112	27-31 TASK 863
		27-12113	27-31 TASK 809
		27-12200	27-21 TASK 813
		27-12201	27-21 TASK 858
		27-12202	27-21 TASK 859
		27-12203	27-21 TASK 860
		27-12204	27-21 TASK 814
		27-12205	27-21 TASK 814
		27-12300	27-61 TASK 816
		27-12301	27-61 TASK 835
		27-12302	27-61 TASK 836
		27-12303	27-61 TASK 837
		27-12304	27-61 TASK 817
		27-12305	27-61 TASK 838
		27-12306	27-61 TASK 839
		27-12307	27-61 TASK 840
		27-12308	27-61 TASK 818
		27-12400	27-41 TASK 809
		27-12401	27-41 TASK 839
		27-12402	27-41 TASK 840
		27-12403	27-41 TASK 841
		27-12404	27-41 TASK 816

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 181
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-12405	27-41 TASK 842
		27-12600	27-31 TASK 834
		27-12601	27-31 TASK 877
		27-12602	27-31 TASK 827
		27-12603	27-31 TASK 878
		27-12604	27-31 TASK 879
		27-12605	27-31 TASK 827
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-13004	27-02 TASK 882
		27-13005	27-02 TASK 883
		27-13006	27-02 TASK 884
		27-13007	27-02 TASK 885
		27-13008	27-02 TASK 807
		27-13009	27-02 TASK 877
		27-13010	27-02 TASK 878
		27-13011	27-02 TASK 879
		27-13012	27-02 TASK 821
		27-13013	27-02 TASK 822
		27-13014	27-02 TASK 823
		27-13015	27-02 TASK 824
		27-13016	27-02 TASK 817
		27-13017	27-02 TASK 825
		27-13018	27-02 TASK 826
		27-13019	27-02 TASK 827
		27-13020	27-02 TASK 818
		27-13021	27-02 TASK 828
		27-13022	27-02 TASK 829
		27-13023	27-02 TASK 830
		27-13024	27-02 TASK 831
		27-13025	27-02 TASK 819
		27-13026	27-02 TASK 832
		27-13027	27-02 TASK 833

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 182
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-13028	27-02 TASK 834
		27-13029	27-02 TASK 820
		27-13030	27-02 TASK 835
		27-13031	27-02 TASK 836
		27-13046	27-02 TASK 805
		27-13047	27-02 TASK 862
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-13050	27-02 TASK 865
		27-13051	27-02 TASK 866
		27-13052	27-02 TASK 867
		27-13053	27-02 TASK 868
		27-13054	27-02 TASK 869
		27-13055	27-02 TASK 870
		27-13056	27-02 TASK 871
		27-13057	27-02 TASK 872
		27-13058	27-02 TASK 873
		27-13059	27-02 TASK 874
		27-13060	27-02 TASK 875
		27-13061	27-02 TASK 876
		27-13062	27-02 TASK 931
		27-13063	27-02 TASK 932
		27-13064	27-02 TASK 933
		27-13065	27-02 TASK 934
		27-13066	27-02 TASK A22
		27-13067	27-02 TASK A23
		27-13068	27-02 TASK A24
		27-13069	27-02 TASK A25
		27-13070	27-31 TASK 899
		27-13071	27-31 TASK 900
		27-13072	27-31 TASK 901
		27-13073	27-31 TASK 902
		27-13074	27-31 TASK 903
		27-14000	27-02 TASK 812
		27-14001	27-02 TASK 886

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 183
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-14002	27-02 TASK 887
		27-14003	27-02 TASK 804
		27-14004	27-02 TASK 860
		27-14005	27-02 TASK 861
		27-14006	27-02 TASK 935
		27-14007	27-02 TASK 936
		27-14008	27-02 TASK 937
		27-14009	27-02 TASK 925
		27-14010	27-02 TASK 926
		27-14011	27-02 TASK 927
		27-14012	27-02 TASK 938
		27-14013	27-02 TASK 939
		27-14014	27-02 TASK 940
		27-14015	27-02 TASK 928
		27-14016	27-02 TASK 929
		27-14017	27-02 TASK 930
		27-14018	27-02 TASK 813
		27-14019	27-02 TASK 941
		27-14020	27-02 TASK 942
		27-14024	27-02 TASK 806
		27-14025	27-02 TASK 943
		27-14026	27-02 TASK 944
		27-14027	27-02 TASK 945
		27-14030	27-02 TASK 905
		27-14031	27-02 TASK 906
		27-14032	27-02 TASK 907
		27-14033	27-02 TASK 908
		27-14044	27-02 TASK 992
		27-14045	27-02 TASK 993
		27-14046	27-02 TASK 994
		27-14047	27-02 TASK 995
		27-14048	27-02 TASK 996
		27-14049	27-02 TASK 997
		27-14050	27-02 TASK 998
		27-14051	27-02 TASK 999

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 184
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-14052	27-02 TASK A00
		27-14053	27-02 TASK A01
		27-14054	27-02 TASK A02
		27-14055	27-02 TASK A03
		27-14056	27-02 TASK A04
		27-14057	27-02 TASK A05
		27-14058	27-02 TASK A06
		27-14059	27-02 TASK A07
		27-14060	27-02 TASK A08
		27-14061	27-02 TASK A09
		27-14062	27-02 TASK A10
		27-14063	27-02 TASK A11
		27-14064	27-02 TASK A12
		27-14065	27-02 TASK A13
		27-14066	27-02 TASK A14
		27-14067	27-02 TASK A15
		27-14068	27-02 TASK A16
		27-14069	27-02 TASK A17
		27-14070	27-02 TASK A18
		27-15000	27-02 TASK 803
		27-15001	27-02 TASK 852
		27-15002	27-02 TASK 853
		27-15003	27-02 TASK 854
		27-15004	27-02 TASK 855
		27-15005	27-02 TASK 856
		27-15006	27-02 TASK 857
		27-15007	27-02 TASK 858
		27-15008	27-02 TASK 859
		27-15009	27-02 TASK 802
		27-15010	27-02 TASK 849
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15013	27-41 TASK 843
		27-15014	27-41 TASK 817
		27-15015	27-41 TASK 844

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 185
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-15016	27-41 TASK 818
		27-15017	27-31 TASK 864
		27-15018	27-31 TASK 828
		27-15019	27-31 TASK 865
		27-15020	27-31 TASK 893
		27-15021	27-11 TASK 885
		27-15022	27-11 TASK 836
		27-15023	27-11 TASK 892
		27-15024	27-11 TASK 893
		27-15025	27-11 TASK 894
		27-15026	27-11 TASK 837
		27-15027	27-11 TASK 895
		27-15028	27-11 TASK 896
		27-15029	27-21 TASK 846
		27-15030	27-21 TASK 847
		27-15031	27-21 TASK 817
		27-15034	27-31 TASK 829
		27-15035	27-31 TASK 894
		27-15036	27-21 TASK 828
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-16029	27-31 TASK 880
		27-16030	27-31 TASK 836
		27-16031	27-31 TASK 881
		27-16032	27-31 TASK 882
		27-16033	27-11 TASK 874
		27-16034	27-11 TASK 839
		27-16035	27-11 TASK 875
		27-16036	27-11 TASK 876
		27-16048	27-31 TASK 883
		27-16049	27-31 TASK 884
		27-16050	27-31 TASK 885
		27-16051	27-31 TASK 895
		27-16052	27-31 TASK 896

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 186
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-16053	27-31 TASK 897
		27-16054	27-11 TASK 915
		27-16055	27-11 TASK 916
		27-16056	27-11 TASK 917
		27-16057	27-11 TASK 913
		27-16058	27-21 TASK 853
		27-16059	27-21 TASK 866
		27-16060	27-21 TASK 867
		27-17019	27-02 TASK 815
		27-17020	27-02 TASK 889
		27-17021	27-02 TASK 890
		27-17022	27-02 TASK 816
		27-17023	27-02 TASK 891
		27-17024	27-02 TASK 892
		27-17031	27-61 TASK 842
		27-17032	27-61 TASK 843
		27-17033	27-61 TASK 844
		27-17034	27-61 TASK 845
		27-17035	27-61 TASK 846
		27-17036	27-61 TASK 847
		27-17900	27-02 TASK 916
		27-18000	27-41 TASK 821
		27-18510	27-02 TASK 894
		27-18550	27-02 TASK 894
		27-18560	27-02 TASK 894
		27-18811	27-02 TASK 901
		27-18822	27-02 TASK 919
		27-18833	27-02 TASK 920
		27-19101	27-02 TASK 974
		27-19104	27-02 TASK 975
		27-19110	27-02 TASK 976
		27-19128	27-02 TASK 978
		27-19150	27-02 TASK 902
		27-19160	27-02 TASK 902
		27-19190	27-02 TASK 902

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 187
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-19201	27-02 TASK 979
		27-19230	27-02 TASK 903
		27-19231	27-02 TASK 981
		27-19237	27-02 TASK 982
		27-19240	27-02 TASK 924
		27-19270	27-02 TASK 921
		27-19280	27-02 TASK 922
		27-19301	27-02 TASK 983
		27-19307	27-02 TASK 984
		27-19310	27-02 TASK 985
		27-19334	27-02 TASK 987
		27-19350	27-02 TASK 923
		27-19390	27-02 TASK 921
		27-19430	27-02 TASK 922
		27-19830	27-02 TASK 923
		27-19870	27-02 TASK 921
		27-19910	27-02 TASK 922
		27-19950	27-02 TASK 923
		27-20251	27-51 TASK 863
		27-20252	27-52 TASK 809
		27-20261	27-51 TASK 809
		27-20262	27-52 TASK 810
		27-20271	27-51 TASK 810
		27-20272	27-52 TASK 811
		27-20691	27-51 TASK 811
		27-20692	27-52 TASK 812
		27-20701	27-51 TASK 812
		27-20702	27-52 TASK 813
		27-20711	27-51 TASK 813
		27-20712	27-52 TASK 814
		27-20891	27-51 TASK 823
		27-20892	27-52 TASK 826
		27-21161	27-81 TASK 814
		27-21162	27-82 TASK 815
		27-21171	27-81 TASK 815

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 188
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		27-21172	27-82 TASK 816
		27-21181	27-81 TASK 816
		27-21182	27-82 TASK 817
		27-21241	27-51 TASK 838
		27-21242	27-52 TASK 832
		27-28801	27-51 TASK 841
		27-28802	27-52 TASK 835
		27-28841	27-51 TASK 842
		27-28851	27-51 TASK 869
		27-28852	27-52 TASK 837
		27-28862	27-52 TASK 836
		29-10130	29-11 TASK 845
		29-10140	29-11 TASK 846
		29-10150	29-11 TASK 894
		29-10180	29-11 TASK 803
		29-10190	29-11 TASK 853
		29-10200	29-21 TASK 801
		29-10210	29-21 TASK 804
		29-10220	29-11 TASK 929
		29-10230	29-11 TASK 930
		29-10240	29-21 TASK 802
		29-10250	29-21 TASK 805
		29-10330	29-11 TASK 827
		29-10340	29-11 TASK 813
		29-10420	29-11 TASK 814
		29-10430	29-11 TASK 815
		29-10440	29-11 TASK 816
		29-10470	29-11 TASK 858
		29-10480	29-11 TASK 859
		29-10490	29-11 TASK 860
		29-10510	29-11 TASK 819
		29-10530	29-11 TASK 862
		29-10550	29-11 TASK 896
		29-10570	29-11 TASK 898
		29-10580	29-11 TASK 863

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 189
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		29-10620	29-11 TASK 899
		29-10650	29-11 TASK 825
		29-10660	29-11 TASK 826
		29-10690	29-11 TASK 829
		29-10710	29-11 TASK 900
		29-10740	29-11 TASK 867
		29-10750	29-11 TASK 868
		29-10760	29-11 TASK 830
		29-10950	29-11 TASK 836
		29-10980	29-11 TASK 908
		29-11020	29-11 TASK 840
		29-11030	29-11 TASK 879
		29-11040	29-11 TASK 841
		29-11060	29-11 TASK 928
		29-11070	29-11 TASK 928
		29-11080	29-11 TASK 928
		29-11090	29-11 TASK 928
		29-11100	29-11 TASK 838
		29-11110	29-11 TASK 877
		29-17005	29-11 TASK 948
		29-17006	29-11 TASK 949
		29-17007	29-11 TASK 950
		29-17008	29-11 TASK 951
		29-17009	29-11 TASK 952
		29-17010	29-11 TASK 953
		29-17011	29-11 TASK 954
		29-17020	29-11 TASK 956
		29-17021	29-11 TASK 957
		29-17022	29-11 TASK 958
		29-17023	29-11 TASK 959
		29-17024	29-11 TASK 955
		29-18893	29-11 TASK 913
		29-18894	29-11 TASK 914
		30-36121	30-31 TASK 801
		30-36122	30-31 TASK 802

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 190
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		30-36123	30-31 TASK 803
		30-36421	30-31 TASK 804
		30-36423	30-31 TASK 805
		30-36521	30-31 TASK 806
		30-36523	30-31 TASK 810
		30-36641	30-31 TASK 807
		30-36642	30-31 TASK 808
		30-36643	30-31 TASK 809
		31-14011	31-09 TASK 812
		31-14012	31-09 TASK 813
		31-14013	31-09 TASK 814
		31-14014	31-09 TASK 815
		31-14015	31-09 TASK 816
		31-14016	31-09 TASK 817
		31-14017	31-09 TASK 818
		31-14018	31-09 TASK 818
		31-17437	31-09 TASK 835
		31-17438	31-09 TASK 836
		31-17639	31-10 TASK 814
		31-17640	31-10 TASK 815
		31-17905	31-07 TASK 801
		31-17906	31-07 TASK 802
		31-17907	31-07 TASK 803
		31-17908	31-07 TASK 804
		31-18801	31-08 TASK 810
		31-18802	31-08 TASK 811
		31-18803	31-08 TASK 812
		31-18804	31-08 TASK 813
		31-18841	31-08 TASK 814
		31-18842	31-08 TASK 814
		31-18863	31-08 TASK 816
		31-18864	31-08 TASK 817
		31-50007	31-44 TASK 821
		31-50008	31-44 TASK 822
		31-50011	31-44 TASK 801

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 191
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		31-50012	31-44 TASK 802
		31-50017	31-44 TASK 823
		31-50018	31-44 TASK 824
		31-50027	31-44 TASK 825
		31-50028	31-44 TASK 826
		31-50091	31-44 TASK 819
		31-50092	31-44 TASK 820
		31-50201	31-43 TASK 852
		31-50202	31-43 TASK 853
		31-50418	31-44 TASK 885
		31-50427	31-44 TASK 886
		31-50428	31-44 TASK 887
		31-50437	31-44 TASK 888
		31-50438	31-44 TASK 889
		31-50447	31-44 TASK 890
		31-50448	31-44 TASK 891
		31-51023	31-44 TASK 865
		31-51024	31-44 TASK 866
		31-51025	31-43 TASK 803
		31-51026	31-43 TASK 804
		31-51033	31-44 TASK 869
		31-51034	31-44 TASK 870
		31-51043	31-44 TASK 871
		31-51044	31-44 TASK 872
		31-51411	34-61 TASK 913
		31-51412	34-61 TASK 914
		31-51413	34-61 TASK 815
		31-51414	34-61 TASK 889
		31-51421	34-61 TASK 888
		31-51422	34-61 TASK 814
		31-51423	34-61 TASK 815
		31-51424	34-61 TASK 889
		31-51531	31-44 TASK 837
		31-51532	31-44 TASK 838
		31-51533	31-44 TASK 839

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 192
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		31-51534	31-44 TASK 840
		31-51731	31-44 TASK 841
		31-51732	31-44 TASK 842
		31-51733	31-44 TASK 843
		31-51734	31-44 TASK 844
		31-52013	31-43 TASK 866
		31-52014	31-43 TASK 867
		31-52101	31-41 TASK 817
		31-52112	31-41 TASK 820
		31-52121	31-41 TASK 821
		31-52122	31-41 TASK 822
		31-52601	31-41 TASK 832
		31-52602	31-41 TASK 833
		31-53401	31-41 TASK 832
		31-53402	31-41 TASK 833
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54101	31-41 TASK 834
		31-54102	31-41 TASK 835
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-54601	31-41 TASK 840
		31-54602	31-41 TASK 841
		31-55401	31-41 TASK 840
		31-55402	31-41 TASK 841
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56102	31-41 TASK 845
		31-56104	31-45 TASK 811
		31-56111	31-41 TASK 846
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-56601	31-41 TASK 842
		31-56602	31-41 TASK 843
		31-58013	31-43 TASK 872

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 193
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		31-58014	31-43 TASK 873
		31-58101	31-41 TASK 852
		31-58102	31-41 TASK 853
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-58601	31-41 TASK 992
		31-58602	31-41 TASK 993
		31-59401	31-41 TASK 992
		31-59402	31-41 TASK 993
		31-61011	31-43 TASK 861
		31-61012	31-43 TASK 862
		31-61020	31-43 TASK 863
		31-61031	31-41 TASK 862
		31-61032	31-41 TASK 891
		31-61041	31-43 TASK 835
		31-61042	31-43 TASK 836
		31-61051	31-43 TASK 837
		31-61052	31-43 TASK 838
		31-61061	31-43 TASK 839
		31-61062	31-43 TASK 840
		31-61071	31-43 TASK 841
		31-61072	31-43 TASK 842
		31-61111	31-43 TASK 856
		31-61112	31-43 TASK 856
		31-61113	31-43 TASK 856
		31-61114	31-43 TASK 856
		31-61115	31-43 TASK 856
		31-61116	31-43 TASK 856
		31-61117	31-43 TASK 856
		31-61118	31-43 TASK 856
		31-68801	31-43 TASK 892
		31-68802	31-43 TASK 893
		31-68811	31-42 TASK 908
		31-68832	31-42 TASK 908
		31-69101	31-42 TASK 801

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 194
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		31-69102	31-42 TASK 801
		31-69107	31-42 TASK 804
		31-69108	31-42 TASK 804
		31-69201	31-42 TASK 809
		31-69202	31-42 TASK 809
		31-69209	31-42 TASK 812
		31-69210	31-42 TASK 812
		31-69301	31-42 TASK 817
		31-69302	31-42 TASK 817
		31-69311	31-42 TASK 820
		31-69312	31-42 TASK 820
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69433	31-42 TASK 838
		31-69434	31-42 TASK 838
		31-69439	31-42 TASK 840
		31-69440	31-42 TASK 840
		31-69496	31-42 TASK 915
		31-69497	31-42 TASK 915
		31-69501	31-42 TASK 852
		31-69502	31-42 TASK 852
		31-69533	31-42 TASK 854
		31-69534	31-42 TASK 854
		31-69535	31-42 TASK 854
		31-69536	31-42 TASK 854
		31-69539	31-42 TASK 855
		31-69540	31-42 TASK 855
		31-69541	31-42 TASK 855
		31-69542	31-42 TASK 855
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		31-69635	31-42 TASK 868
		31-69636	31-42 TASK 868
		31-69641	31-42 TASK 870
		31-69642	31-42 TASK 870

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 195
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		31-70011	31-51 TASK 801
		31-70012	31-51 TASK 821
		31-70021	31-51 TASK 802
		31-70022	31-51 TASK 822
		31-78801	31-51 TASK 801
		31-78802	31-51 TASK 821
		31-78841	31-51 TASK 825
		31-78851	31-51 TASK 826
		31-78852	31-51 TASK 898
		31-78862	31-51 TASK 827
		31-79401	31-51 TASK 804
		31-79402	31-51 TASK 805
		31-79437	31-51 TASK 815
		31-79439	31-51 TASK 816
		31-79501	31-51 TASK 836
		31-79502	31-51 TASK 837
		31-79503	31-51 TASK 838
		31-79504	31-51 TASK 839
		31-79537	31-51 TASK 852
		31-79539	31-51 TASK 854
		31-79542	31-51 TASK 857
		31-79544	31-51 TASK 859
		31-79603	31-51 TASK 860
		31-79604	31-51 TASK 861
		31-79642	31-51 TASK 872
		31-79644	31-51 TASK 873
		31-89417	31-42 TASK 915
		31-89418	31-42 TASK 915
		31-89617	31-42 TASK 916
		31-89618	31-42 TASK 916
		31-89619	31-42 TASK 916
		31-89620	31-42 TASK 916
		32-21000	32-09 TASK 807
		32-21100	32-09 TASK 802
		32-21300	32-09 TASK 803

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 196
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		32-22000	32-09 TASK 809
		32-22100	32-09 TASK 809
		32-28801	32-09 TASK 821
		34-25101	34-11 TASK 801
		34-25102	34-11 TASK 802
		34-25103	34-11 TASK 803
		34-25201	34-11 TASK 804
		34-25202	34-11 TASK 805
		34-25203	34-11 TASK 806
		34-25601	34-21 TASK 808
		34-25603	34-21 TASK 885
		34-25800	34-21 TASK 809
		34-26101	34-21 TASK 810
		34-26102	34-21 TASK 839
		34-26103	34-21 TASK 840
		34-26201	34-21 TASK 843
		34-26202	34-21 TASK 844
		34-26203	34-21 TASK 845
		34-28801	34-21 TASK 848
		34-28810	34-21 TASK 849
		34-28813	34-21 TASK 813
		34-28816	34-21 TASK 814
		34-28824	34-21 TASK 850
		34-28827	34-21 TASK 851
		34-28830	34-21 TASK 852
		34-28835	34-21 TASK 853
		34-28838	34-21 TASK 854
		34-29101	34-21 TASK 893
		34-29102	34-21 TASK 815
		34-29105	34-21 TASK 816
		34-29107	34-21 TASK 817
		34-29115	34-21 TASK 857
		34-29120	34-21 TASK 894
		34-29201	34-21 TASK 858
		34-29202	34-21 TASK 859

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 197
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		34-29204	34-21 TASK 860
		34-29216	34-21 TASK 862
		34-29301	34-21 TASK 895
		34-29303	34-21 TASK 864
		34-29306	34-21 TASK 865
		34-29308	34-21 TASK 866
		34-29317	34-21 TASK 869
		34-29320	34-21 TASK 896
		34-30700	34-21 TASK 870
		34-30711	34-21 TASK 818
		34-30713	34-21 TASK 872
		34-30760	34-21 TASK 819
		34-31601	34-21 TASK 821
		34-32601	34-21 TASK 822
		34-32803	34-21 TASK 822
		34-33800	34-21 TASK 886
		34-34603	34-21 TASK 887
		34-35603	34-21 TASK 888
		34-36800	34-21 TASK 890
		34-38310	34-21 TASK 819
		34-38801	34-21 TASK 874
		34-38820	34-21 TASK 898
		34-39101	34-21 TASK 825
		34-39103	34-21 TASK 826
		34-39106	34-21 TASK 827
		34-39111	34-21 TASK 828
		34-39118	34-21 TASK 829
		34-39201	34-21 TASK 871
		34-39204	34-21 TASK 876
		34-39207	34-21 TASK 877
		34-39301	34-21 TASK 879
		34-39305	34-21 TASK 880
		34-39308	34-21 TASK 881
		34-39312	34-21 TASK 882
		34-39318	34-21 TASK 884

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 071 00	FLIGHT CONTROL SYS (EICAS STATUS)	(continued)	
		34-71011	34-61 TASK 905
		34-71012	34-61 TASK 906
		34-71060	34-90 TASK 801
		NONE	27-02 TASK 990
270 076 00	ACTUATOR PRESS SNSR (EICAS STATUS)	27-11110	27-31 TASK 871
		27-11111	27-31 TASK 805
		27-11112	27-31 TASK 872
		27-11113	27-31 TASK 873
		27-11310	27-11 TASK 863
		27-11311	27-11 TASK 829
		27-11312	27-11 TASK 864
		27-11313	27-11 TASK 865
		27-11314	27-11 TASK 871
		27-11315	27-11 TASK 833
		27-11316	27-11 TASK 872
		27-11317	27-11 TASK 873
		27-11410	27-21 TASK 863
		27-11411	27-21 TASK 864
		27-11412	27-21 TASK 811
		27-11413	27-21 TASK 824
		27-11414	27-21 TASK 825
		27-11415	27-21 TASK 812
		27-13012	27-02 TASK 821
		27-13013	27-02 TASK 822
		27-13014	27-02 TASK 823
		27-13015	27-02 TASK 824
		27-13016	27-02 TASK 817
		27-13017	27-02 TASK 825
		27-13018	27-02 TASK 826
		27-13019	27-02 TASK 827
		27-13020	27-02 TASK 818
		27-13021	27-02 TASK 828
		27-13022	27-02 TASK 829
		27-13023	27-02 TASK 830
		27-16048	27-31 TASK 883

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.1
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 076 00	ACTUATOR PRESS SNSR (EICAS STATUS)	(continued) 27-16049	27-31 TASK 884
270 081 00	AILERON ACTUATOR (EICAS STATUS)	27-10200 27-10201 27-10202 27-10203 27-10204 27-10205 27-10206 27-10207 27-10208 27-10209 27-10210 27-10211 27-10218 27-10219 27-10220 27-10221 27-10222 27-10223 27-11200 27-11201 27-11202 27-11203 27-11204 27-11205 27-11206 27-11207 27-11208 27-11209 27-11210 27-11211 27-11212 27-11213 27-13004 27-13005	27-11 TASK 801 27-11 TASK 802 27-11 TASK 803 27-11 TASK 804 27-11 TASK 905 27-11 TASK 844 27-11 TASK 880 27-11 TASK 881 27-11 TASK 860 27-11 TASK 828 27-11 TASK 861 27-11 TASK 862 27-11 TASK 922 27-11 TASK 923 27-11 TASK 924 27-11 TASK 925 27-11 TASK 926 27-11 TASK 927 27-11 TASK 806 27-11 TASK 807 27-11 TASK 808 27-11 TASK 809 27-11 TASK 830 27-11 TASK 866 27-11 TASK 810 27-11 TASK 811 27-11 TASK 812 27-11 TASK 813 27-11 TASK 868 27-11 TASK 832 27-11 TASK 869 27-11 TASK 870 27-02 TASK 882 27-02 TASK 883

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.2
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 081 00	AILERON ACTUATOR (EICAS STATUS)	(continued)	
		27-13006	27-02 TASK 884
		27-13007	27-02 TASK 885
		27-13024	27-02 TASK 831
		27-13025	27-02 TASK 819
		27-13026	27-02 TASK 832
		27-13027	27-02 TASK 833
		27-13062	27-02 TASK 931
		27-13063	27-02 TASK 932
		27-13064	27-02 TASK 933
		27-13065	27-02 TASK 934
		27-15021	27-11 TASK 885
		27-15022	27-11 TASK 836
		27-15023	27-11 TASK 892
		27-15024	27-11 TASK 893
		27-16033	27-11 TASK 874
		27-16034	27-11 TASK 839
		27-16035	27-11 TASK 875
		27-16036	27-11 TASK 876
270 085 00	FLAPERON ACTUATOR (EICAS STATUS)	27-10300	27-11 TASK 814
		27-10301	27-11 TASK 815
		27-10302	27-11 TASK 816
		27-10303	27-11 TASK 817
		27-10304	27-11 TASK 882
		27-10305	27-11 TASK 845
		27-10306	27-11 TASK 906
		27-10307	27-11 TASK 883
		27-10316	27-11 TASK 848
		27-10317	27-11 TASK 912
		27-11300	27-11 TASK 818
		27-11301	27-11 TASK 819
		27-11302	27-11 TASK 820
		27-11303	27-11 TASK 821
		27-11304	27-11 TASK 831
		27-11305	27-11 TASK 867
		27-11306	27-11 TASK 822

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.3
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 085 00	FLAPERON ACTUATOR (EICAS STATUS)	(continued)	
		27-11307	27-11 TASK 823
		27-11308	27-11 TASK 824
		27-11309	27-11 TASK 825
		27-11310	27-11 TASK 863
		27-11311	27-11 TASK 829
		27-11312	27-11 TASK 864
		27-11313	27-11 TASK 865
		27-11314	27-11 TASK 871
		27-11315	27-11 TASK 833
		27-11316	27-11 TASK 872
		27-11317	27-11 TASK 873
		27-13004	27-02 TASK 882
		27-13005	27-02 TASK 883
		27-13006	27-02 TASK 884
		27-13007	27-02 TASK 885
		27-13020	27-02 TASK 818
		27-13021	27-02 TASK 828
		27-13022	27-02 TASK 829
		27-13023	27-02 TASK 830
		27-13062	27-02 TASK 931
		27-13063	27-02 TASK 932
		27-13064	27-02 TASK 933
		27-13065	27-02 TASK 934
		27-15025	27-11 TASK 894
		27-15026	27-11 TASK 837
		27-15027	27-11 TASK 895
		27-15028	27-11 TASK 896
		27-16037	27-11 TASK 877
		27-16038	27-11 TASK 840
		27-16039	27-11 TASK 878
		27-16040	27-11 TASK 879
270 086 00	SPOILER ACTUATOR (EICAS STATUS)	27-10500	27-61 TASK 801
		27-10501	27-61 TASK 802
		27-10502	27-61 TASK 803
		27-10504	27-61 TASK 804

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.4
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 086 00	SPOILER ACTUATOR (EICAS STATUS)	(continued)	
		27-10505	27-61 TASK 805
		27-10506	27-61 TASK 806
		27-10507	27-61 TASK 807
		27-10508	27-61 TASK 808
		27-10509	27-61 TASK 809
		27-10511	27-61 TASK 811
		27-10512	27-61 TASK 812
		27-10513	27-61 TASK 813
		27-11500	27-61 TASK 814
		27-11501	27-61 TASK 819
		27-11502	27-61 TASK 820
		27-11504	27-61 TASK 822
		27-11505	27-61 TASK 823
		27-11506	27-61 TASK 824
		27-11507	27-61 TASK 825
		27-11508	27-61 TASK 826
		27-11509	27-61 TASK 827
		27-11511	27-61 TASK 832
		27-11512	27-61 TASK 833
		27-11513	27-61 TASK 834
		27-13004	27-02 TASK 882
		27-13005	27-02 TASK 883
		27-13006	27-02 TASK 884
		27-13007	27-02 TASK 885
		27-13028	27-02 TASK 834
		27-13029	27-02 TASK 820
		27-13030	27-02 TASK 835
		27-13031	27-02 TASK 836
		27-13062	27-02 TASK 931
		27-13063	27-02 TASK 932
		27-13064	27-02 TASK 933
		27-13065	27-02 TASK 934
270 450 00	Scheduled maintenance task shows: TEST PASSED.		27-02 TASK A21

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.5
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 451 00	Scheduled maintenance task shows: TEST FAILED.		27-02 TASK A21
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	21-16205 23-81001 23-81002 23-81003 23-81004 23-81005 23-81006 23-81007 24-11780 24-11781 24-11784 24-11785 24-11786 24-11787 24-11790 24-11793 24-11795 24-11796 24-12051 24-12056 24-12057 24-12122 24-12124 24-12125 24-12126 24-12127 24-12800 24-12801 24-13801 24-13814 24-13815 24-13816 24-13817	21-25 TASK 823 23-91 TASK 801 23-91 TASK 802 23-91 TASK 803 23-91 TASK 804 23-91 TASK 805 23-91 TASK 806 23-91 TASK 807 24-53 TASK 805 24-51 TASK 837 24-51 TASK 836 24-51 TASK 836 24-51 TASK 833 24-32 TASK 817 24-08 TASK 833 24-08 TASK 834 24-08 TASK 804 24-08 TASK 804 24-32 TASK 819 24-32 TASK 820 24-08 TASK 836 24-08 TASK 835 24-51 TASK 840 24-51 TASK 841 24-51 TASK 841 24-51 TASK 842 24-08 TASK 805 24-08 TASK 805 24-61 TASK 805 24-33 TASK 817 24-61 TASK 806 24-32 TASK 831 24-33 TASK 818

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.6
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		24-13818	24-53 TASK 807
		24-18801	24-09 TASK 806
		24-18802	24-09 TASK 807
		24-78841	24-08 TASK 860
		24-78842	24-08 TASK 862
		24-78861	24-08 TASK 861
		24-78862	24-08 TASK 863
		27-10314	27-11 TASK 847
		27-10315	27-11 TASK 919
		27-10416	27-21 TASK 833
		27-10804	27-21 TASK 870
		27-10805	27-21 TASK 871
		27-12500	27-11 TASK 851
		27-12501	27-11 TASK 897
		27-12600	27-31 TASK 834
		27-12601	27-31 TASK 877
		27-12603	27-31 TASK 878
		27-12604	27-31 TASK 879
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-14000	27-02 TASK 812
		27-14001	27-02 TASK 886
		27-14002	27-02 TASK 887
		27-14003	27-02 TASK 804
		27-14004	27-02 TASK 860
		27-14005	27-02 TASK 861
		27-14018	27-02 TASK 813
		27-14019	27-02 TASK 941
		27-14020	27-02 TASK 942
		27-14024	27-02 TASK 806
		27-14025	27-02 TASK 943
		27-14026	27-02 TASK 944

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.7
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		27-14027	27-02 TASK 945
		27-14030	27-02 TASK 905
		27-14031	27-02 TASK 906
		27-14032	27-02 TASK 907
		27-14033	27-02 TASK 908
		27-14053	27-02 TASK A01
		27-14054	27-02 TASK A02
		27-14055	27-02 TASK A03
		27-14056	27-02 TASK A04
		27-14057	27-02 TASK A05
		27-14058	27-02 TASK A06
		27-14059	27-02 TASK A07
		27-14060	27-02 TASK A08
		27-14061	27-02 TASK A09
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-18510	27-02 TASK 894
		27-18550	27-02 TASK 894
		27-18560	27-02 TASK 894
		27-18811	27-02 TASK 901
		27-18822	27-02 TASK 919
		27-18833	27-02 TASK 920
		27-19101	27-02 TASK 974
		27-19104	27-02 TASK 975
		27-19150	27-02 TASK 902
		27-19160	27-02 TASK 902
		27-19190	27-02 TASK 902
		27-19201	27-02 TASK 979
		27-19230	27-02 TASK 903
		27-19240	27-02 TASK 924
		27-19270	27-02 TASK 921
		27-19280	27-02 TASK 922
		27-19301	27-02 TASK 983

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.8
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		27-19307	27-02 TASK 984
		27-19350	27-02 TASK 923
		27-19390	27-02 TASK 921
		27-19430	27-02 TASK 922
		27-19830	27-02 TASK 923
		27-19870	27-02 TASK 921
		27-19910	27-02 TASK 922
		27-19950	27-02 TASK 923
		27-20251	27-51 TASK 863
		27-20252	27-52 TASK 809
		27-20261	27-51 TASK 809
		27-20262	27-52 TASK 810
		27-20271	27-51 TASK 810
		27-20272	27-52 TASK 811
		27-20691	27-51 TASK 811
		27-20692	27-52 TASK 812
		27-20701	27-51 TASK 812
		27-20702	27-52 TASK 813
		27-20711	27-51 TASK 813
		27-20712	27-52 TASK 814
		27-20891	27-51 TASK 823
		27-20892	27-52 TASK 826
		27-21161	27-81 TASK 814
		27-21162	27-82 TASK 815
		27-21171	27-81 TASK 815
		27-21172	27-82 TASK 816
		27-21181	27-81 TASK 816
		27-21182	27-82 TASK 817
		27-21241	27-51 TASK 838
		27-21242	27-52 TASK 832
		27-28801	27-51 TASK 841
		27-28802	27-52 TASK 835
		27-28841	27-51 TASK 842
		27-28851	27-51 TASK 869

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.9
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		27-28852	27-52 TASK 837
		27-28862	27-52 TASK 836
		30-36121	30-31 TASK 801
		30-36122	30-31 TASK 802
		30-36123	30-31 TASK 803
		30-36421	30-31 TASK 804
		30-36423	30-31 TASK 805
		30-36521	30-31 TASK 806
		30-36523	30-31 TASK 810
		30-36641	30-31 TASK 807
		30-36642	30-31 TASK 808
		30-36643	30-31 TASK 809
		31-50007	31-44 TASK 821
		31-50008	31-44 TASK 822
		31-50011	31-44 TASK 801
		31-50012	31-44 TASK 802
		31-50017	31-44 TASK 823
		31-50018	31-44 TASK 824
		31-50027	31-44 TASK 825
		31-50028	31-44 TASK 826
		31-50091	31-44 TASK 819
		31-50092	31-44 TASK 820
		31-50201	31-43 TASK 852
		31-50202	31-43 TASK 853
		31-50418	31-44 TASK 885
		31-50427	31-44 TASK 886
		31-50428	31-44 TASK 887
		31-50437	31-44 TASK 888
		31-50438	31-44 TASK 889
		31-50447	31-44 TASK 890
		31-50448	31-44 TASK 891
		31-51013	31-44 TASK 863
		31-51023	31-44 TASK 865
		31-51024	31-44 TASK 866

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.10
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		31-51025	31-43 TASK 803
		31-51026	31-43 TASK 804
		31-51033	31-44 TASK 869
		31-51034	31-44 TASK 870
		31-51043	31-44 TASK 871
		31-51044	31-44 TASK 872
		31-51141	31-44 TASK 827
		31-51143	31-44 TASK 831
		31-51341	31-44 TASK 833
		31-51343	31-44 TASK 835
		31-51411	34-61 TASK 913
		31-51412	34-61 TASK 914
		31-51413	34-61 TASK 815
		31-51414	34-61 TASK 889
		31-51421	34-61 TASK 888
		31-51422	34-61 TASK 814
		31-51423	34-61 TASK 815
		31-51424	34-61 TASK 889
		31-51531	31-44 TASK 837
		31-51532	31-44 TASK 838
		31-51533	31-44 TASK 839
		31-51534	31-44 TASK 840
		31-51731	31-44 TASK 841
		31-51732	31-44 TASK 842
		31-51733	31-44 TASK 843
		31-51734	31-44 TASK 844
		31-52013	31-43 TASK 866
		31-52014	31-43 TASK 867
		31-52101	31-41 TASK 817
		31-52112	31-41 TASK 820
		31-52121	31-41 TASK 821
		31-52122	31-41 TASK 822
		31-52601	31-41 TASK 832
		31-52602	31-41 TASK 833

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.11
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		31-53401	31-41 TASK 832
		31-53402	31-41 TASK 833
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54101	31-41 TASK 834
		31-54102	31-41 TASK 835
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-54601	31-41 TASK 840
		31-54602	31-41 TASK 841
		31-55401	31-41 TASK 840
		31-55402	31-41 TASK 841
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56102	31-41 TASK 845
		31-56104	31-45 TASK 811
		31-56111	31-41 TASK 846
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-56601	31-41 TASK 842
		31-56602	31-41 TASK 843
		31-58013	31-43 TASK 872
		31-58014	31-43 TASK 873
		31-58101	31-41 TASK 852
		31-58102	31-41 TASK 853
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-58601	31-41 TASK 992
		31-58602	31-41 TASK 993
		31-59401	31-41 TASK 992
		31-59402	31-41 TASK 993
		31-61011	31-43 TASK 861
		31-61012	31-43 TASK 862
		31-61020	31-43 TASK 863

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.12
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		31-61031	31-41 TASK 862
		31-61032	31-41 TASK 891
		31-61041	31-43 TASK 835
		31-61042	31-43 TASK 836
		31-61051	31-43 TASK 837
		31-61052	31-43 TASK 838
		31-61061	31-43 TASK 839
		31-61062	31-43 TASK 840
		31-61071	31-43 TASK 841
		31-61072	31-43 TASK 842
		31-61111	31-43 TASK 856
		31-61112	31-43 TASK 856
		31-61113	31-43 TASK 856
		31-61114	31-43 TASK 856
		31-61115	31-43 TASK 856
		31-61116	31-43 TASK 856
		31-61117	31-43 TASK 856
		31-61118	31-43 TASK 856
		31-62011	31-43 TASK 843
		31-62020	31-43 TASK 845
		31-62071	31-43 TASK 850
		31-68801	31-43 TASK 892
		31-68802	31-43 TASK 893
		31-68811	31-42 TASK 908
		31-68832	31-42 TASK 908
		31-69101	31-42 TASK 801
		31-69102	31-42 TASK 801
		31-69117	31-42 TASK 806
		31-69118	31-42 TASK 806
		31-69201	31-42 TASK 809
		31-69202	31-42 TASK 809
		31-69219	31-42 TASK 814
		31-69220	31-42 TASK 814
		31-69301	31-42 TASK 817

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.13
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		31-69302	31-42 TASK 817
		31-69317	31-42 TASK 822
		31-69318	31-42 TASK 822
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69433	31-42 TASK 838
		31-69434	31-42 TASK 838
		31-69439	31-42 TASK 840
		31-69440	31-42 TASK 840
		31-69496	31-42 TASK 915
		31-69497	31-42 TASK 915
		31-69501	31-42 TASK 852
		31-69502	31-42 TASK 852
		31-69533	31-42 TASK 854
		31-69534	31-42 TASK 854
		31-69535	31-42 TASK 854
		31-69536	31-42 TASK 854
		31-69539	31-42 TASK 855
		31-69540	31-42 TASK 855
		31-69541	31-42 TASK 855
		31-69542	31-42 TASK 855
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		31-69635	31-42 TASK 868
		31-69636	31-42 TASK 868
		31-69641	31-42 TASK 870
		31-69642	31-42 TASK 870
		31-70011	31-51 TASK 801
		31-70012	31-51 TASK 821
		31-70021	31-51 TASK 802
		31-70022	31-51 TASK 822
		31-78801	31-51 TASK 801
		31-78802	31-51 TASK 821
		31-78841	31-51 TASK 825

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.14
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		31-78851	31-51 TASK 826
		31-78852	31-51 TASK 898
		31-78862	31-51 TASK 827
		31-79401	31-51 TASK 804
		31-79402	31-51 TASK 805
		31-79437	31-51 TASK 815
		31-79439	31-51 TASK 816
		31-79501	31-51 TASK 836
		31-79502	31-51 TASK 837
		31-79503	31-51 TASK 838
		31-79504	31-51 TASK 839
		31-79537	31-51 TASK 852
		31-79539	31-51 TASK 854
		31-79542	31-51 TASK 857
		31-79544	31-51 TASK 859
		31-79603	31-51 TASK 860
		31-79604	31-51 TASK 861
		31-79642	31-51 TASK 872
		31-79644	31-51 TASK 873
		31-89417	31-42 TASK 915
		31-89418	31-42 TASK 915
		31-89617	31-42 TASK 916
		31-89618	31-42 TASK 916
		31-89619	31-42 TASK 916
		31-89620	31-42 TASK 916
		34-25101	34-11 TASK 801
		34-25102	34-11 TASK 802
		34-25103	34-11 TASK 803
		34-25201	34-11 TASK 804
		34-25202	34-11 TASK 805
		34-25203	34-11 TASK 806
		34-25601	34-21 TASK 808
		34-25603	34-21 TASK 885
		34-25800	34-21 TASK 809

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.15
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		34-26101	34-21 TASK 810
		34-26102	34-21 TASK 839
		34-26103	34-21 TASK 840
		34-26201	34-21 TASK 843
		34-26202	34-21 TASK 844
		34-26203	34-21 TASK 845
		34-28801	34-21 TASK 848
		34-28810	34-21 TASK 849
		34-28813	34-21 TASK 813
		34-28816	34-21 TASK 814
		34-28824	34-21 TASK 850
		34-28827	34-21 TASK 851
		34-28830	34-21 TASK 852
		34-28835	34-21 TASK 853
		34-28838	34-21 TASK 854
		34-29101	34-21 TASK 893
		34-29102	34-21 TASK 815
		34-29105	34-21 TASK 816
		34-29107	34-21 TASK 817
		34-29115	34-21 TASK 857
		34-29120	34-21 TASK 894
		34-29201	34-21 TASK 858
		34-29202	34-21 TASK 859
		34-29204	34-21 TASK 860
		34-29216	34-21 TASK 862
		34-29301	34-21 TASK 895
		34-29303	34-21 TASK 864
		34-29306	34-21 TASK 865
		34-29308	34-21 TASK 866
		34-29317	34-21 TASK 869
		34-29320	34-21 TASK 896
		34-30700	34-21 TASK 870
		34-30711	34-21 TASK 818
		34-30712	34-21 TASK 871

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.16
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		34-30713	34-21 TASK 872
		34-30760	34-21 TASK 819
		34-31601	34-21 TASK 821
		34-32601	34-21 TASK 822
		34-32803	34-21 TASK 822
		34-33800	34-21 TASK 886
		34-34603	34-21 TASK 887
		34-35603	34-21 TASK 888
		34-36800	34-21 TASK 890
		34-38310	34-21 TASK 819
		34-38801	34-21 TASK 874
		34-38820	34-21 TASK 898
		34-39101	34-21 TASK 825
		34-39103	34-21 TASK 826
		34-39106	34-21 TASK 827
		34-39111	34-21 TASK 828
		34-39201	34-21 TASK 871
		34-39204	34-21 TASK 876
		34-39207	34-21 TASK 877
		34-39301	34-21 TASK 879
		34-39305	34-21 TASK 880
		34-39308	34-21 TASK 881
		34-39312	34-21 TASK 882
		34-71011	34-61 TASK 905
		34-71012	34-61 TASK 906
		34-71060	34-90 TASK 801
		73-03131	73-28 TASK 831
		73-03132	73-28 TASK 837
		73-07011	73-34 TASK 801
		73-07012	73-34 TASK 801
		73-07021	73-34 TASK 802
		73-07022	73-34 TASK 802
		73-07041	73-34 TASK 803
		73-07042	73-34 TASK 803

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.17
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		73-07051	73-34 TASK 804
		73-07052	73-34 TASK 804
		73-07071	73-34 TASK 805
		73-07072	73-34 TASK 805
		73-07081	73-34 TASK 806
		73-07082	73-34 TASK 806
		73-07091	73-28 TASK 836
		73-07092	73-28 TASK 836
		73-07121	73-28 TASK 835
		73-07122	73-28 TASK 835
		73-08025	73-27 TASK 870
		73-08026	73-27 TASK 870
		73-08031	73-28 TASK 845
		73-08032	73-28 TASK 846
		73-08045	73-27 TASK 873
		73-08046	73-27 TASK 874
		73-08055	73-27 TASK 875
		73-08056	73-27 TASK 876
		73-08061	73-28 TASK 834
		73-08062	73-28 TASK 834
		73-08071	73-28 TASK 841
		73-08072	73-28 TASK 841
		73-08081	73-27 TASK 827
		73-08082	73-27 TASK 827
		73-08091	73-28 TASK 855
		73-08092	73-28 TASK 855
		73-08105	73-27 TASK 871
		73-08106	73-27 TASK 871
		73-08111	73-28 TASK 856
		73-08112	73-28 TASK 856
		73-08122	73-98 TASK 801
		73-08125	73-28 TASK 844
		73-08126	73-28 TASK 844
		73-08245	73-27 TASK 873

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.18
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		73-08246	73-27 TASK 874
		73-08255	73-27 TASK 875
		73-08256	73-27 TASK 876
		73-08281	73-27 TASK 827
		73-08282	73-27 TASK 827
		73-08311	73-98 TASK 801
		73-08312	73-98 TASK 801
		73-08445	73-27 TASK 873
		73-08446	73-27 TASK 874
		73-08455	73-27 TASK 875
		73-08456	73-27 TASK 876
		73-08481	73-27 TASK 827
		73-08482	73-27 TASK 827
		73-08645	73-27 TASK 873
		73-08646	73-27 TASK 874
		73-08651	73-98 TASK 801
		73-08652	73-98 TASK 801
		73-08681	73-27 TASK 872
		73-08682	73-27 TASK 872
		73-13111	73-21 TASK 842
		73-13112	73-21 TASK 842
		73-14621	73-22 TASK 839
		73-14622	73-22 TASK 839
		73-23111	73-21 TASK 842
		73-23112	73-21 TASK 842
		73-24621	73-22 TASK 839
		73-24622	73-22 TASK 839
		73-34771	73-22 TASK 846
		73-34772	73-22 TASK 846
		73-34851	73-22 TASK 851
		73-34852	73-22 TASK 851
		73-35491	73-28 TASK 849
		73-35492	73-28 TASK 851
		76-15211	76-11 TASK 807

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.19
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		76-15212	76-11 TASK 807
		76-25211	76-11 TASK 808
		76-25212	76-11 TASK 808
		76-35201	76-11 TASK 806
		76-35202	76-11 TASK 806
		77-14601	77-12 TASK 814
		77-14602	77-12 TASK 814
		77-14611	77-12 TASK 816
		77-14612	77-12 TASK 816
		77-14701	77-12 TASK 813
		77-14702	77-12 TASK 813
		77-14901	77-12 TASK 815
		77-14902	77-12 TASK 815
		77-24601	77-12 TASK 814
		77-24602	77-12 TASK 814
		77-24611	77-12 TASK 816
		77-24612	77-12 TASK 816
		77-24701	77-12 TASK 813
		77-24702	77-12 TASK 813
		77-24901	77-12 TASK 815
		77-24902	77-12 TASK 815
		77-37911	77-12 TASK 817
		77-37912	77-12 TASK 818
		78-00011	78-34 TASK 836
		78-00012	78-34 TASK 837
		78-00021	78-34 TASK 838
		78-00022	78-34 TASK 838
		78-00031	78-34 TASK 838
		78-00032	78-34 TASK 838
		78-00041	78-34 TASK 838
		78-00042	78-34 TASK 838
		78-00051	78-34 TASK 838
		78-00052	78-34 TASK 838
		78-00061	78-34 TASK 839

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.20
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 41	Maintenance memo shows on the MAT: FLIGHT CONTROLS (L).	(continued)	
		78-00062	78-34 TASK 840
		78-00071	78-34 TASK 841
		78-00072	78-34 TASK 842
		78-00081	78-34 TASK 843
		78-00082	78-34 TASK 843
		78-00091	78-34 TASK 843
		78-00092	78-34 TASK 843
		78-15041	78-36 TASK 857
		78-15042	78-36 TASK 858
		78-15061	78-36 TASK 859
		78-15062	78-36 TASK 860
		78-25041	78-36 TASK 861
		78-25042	78-36 TASK 862
		78-25061	78-36 TASK 863
		78-25062	78-36 TASK 864
		78-32081	78-31 TASK 801
		78-32082	78-31 TASK 801
		78-32111	78-31 TASK 801
		78-32112	78-31 TASK 801
		78-35001	78-34 TASK 850
		78-35002	78-34 TASK 851
		78-35011	78-34 TASK 852
		78-35012	78-34 TASK 853
		78-35021	78-34 TASK 854
		78-35022	78-34 TASK 855
		78-35051	78-36 TASK 867
		78-35052	78-36 TASK 868
		78-35071	78-36 TASK 869
		78-35072	78-36 TASK 870
		78-35081	78-31 TASK 802
		78-35082	78-31 TASK 802
		78-35111	78-31 TASK 802
		78-35112	78-31 TASK 802

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.21
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	21-16205	21-25 TASK 823
		23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81005	23-91 TASK 805
		23-81006	23-91 TASK 806
		23-81007	23-91 TASK 807
		24-11780	24-53 TASK 805
		24-11781	24-51 TASK 837
		24-11784	24-51 TASK 836
		24-11785	24-51 TASK 836
		24-11786	24-51 TASK 833
		24-11787	24-32 TASK 817
		24-11790	24-08 TASK 833
		24-11793	24-08 TASK 834
		24-11795	24-08 TASK 804
		24-11796	24-08 TASK 804
		24-12051	24-32 TASK 819
		24-12056	24-32 TASK 820
		24-12057	24-08 TASK 836
		24-12122	24-08 TASK 835
		24-12124	24-51 TASK 840
		24-12125	24-51 TASK 841
		24-12126	24-51 TASK 841
		24-12127	24-51 TASK 842
		24-12800	24-08 TASK 805
		24-12801	24-08 TASK 805
		24-13801	24-61 TASK 805
		24-13814	24-33 TASK 817
		24-13815	24-61 TASK 806
		24-13816	24-32 TASK 831
		24-13817	24-33 TASK 818
		24-13818	24-53 TASK 807
		24-18801	24-09 TASK 806

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.22
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		24-18802	24-09 TASK 807
		24-78841	24-08 TASK 860
		24-78842	24-08 TASK 862
		24-78861	24-08 TASK 861
		24-78862	24-08 TASK 863
		27-10314	27-11 TASK 847
		27-10315	27-11 TASK 919
		27-10416	27-21 TASK 833
		27-10804	27-21 TASK 870
		27-10805	27-21 TASK 871
		27-12500	27-11 TASK 851
		27-12501	27-11 TASK 897
		27-12600	27-31 TASK 834
		27-12601	27-31 TASK 877
		27-12603	27-31 TASK 878
		27-12604	27-31 TASK 879
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-14012	27-02 TASK 938
		27-14013	27-02 TASK 939
		27-14014	27-02 TASK 940
		27-14015	27-02 TASK 928
		27-14016	27-02 TASK 929
		27-14017	27-02 TASK 930
		27-14018	27-02 TASK 813
		27-14019	27-02 TASK 941
		27-14020	27-02 TASK 942
		27-14024	27-02 TASK 806
		27-14025	27-02 TASK 943
		27-14026	27-02 TASK 944
		27-14027	27-02 TASK 945
		27-14030	27-02 TASK 905

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.23
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		27-14031	27-02 TASK 906
		27-14032	27-02 TASK 907
		27-14033	27-02 TASK 908
		27-14062	27-02 TASK A10
		27-14063	27-02 TASK A11
		27-14064	27-02 TASK A12
		27-14065	27-02 TASK A13
		27-14066	27-02 TASK A14
		27-14067	27-02 TASK A15
		27-14068	27-02 TASK A16
		27-14069	27-02 TASK A17
		27-14070	27-02 TASK A18
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-18510	27-02 TASK 894
		27-18550	27-02 TASK 894
		27-18560	27-02 TASK 894
		27-18811	27-02 TASK 901
		27-18822	27-02 TASK 919
		27-18833	27-02 TASK 920
		27-19101	27-02 TASK 974
		27-19104	27-02 TASK 975
		27-19150	27-02 TASK 902
		27-19160	27-02 TASK 902
		27-19190	27-02 TASK 902
		27-19201	27-02 TASK 979
		27-19230	27-02 TASK 903
		27-19240	27-02 TASK 924
		27-19270	27-02 TASK 921
		27-19280	27-02 TASK 922
		27-19301	27-02 TASK 983
		27-19307	27-02 TASK 984
		27-19350	27-02 TASK 923

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.24
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		27-19390	27-02 TASK 921
		27-19430	27-02 TASK 922
		27-19830	27-02 TASK 923
		27-19870	27-02 TASK 921
		27-19910	27-02 TASK 922
		27-19950	27-02 TASK 923
		27-20251	27-51 TASK 863
		27-20252	27-52 TASK 809
		27-20261	27-51 TASK 809
		27-20262	27-52 TASK 810
		27-20271	27-51 TASK 810
		27-20272	27-52 TASK 811
		27-20691	27-51 TASK 811
		27-20692	27-52 TASK 812
		27-20701	27-51 TASK 812
		27-20702	27-52 TASK 813
		27-20711	27-51 TASK 813
		27-20712	27-52 TASK 814
		27-20891	27-51 TASK 823
		27-20892	27-52 TASK 826
		27-21161	27-81 TASK 814
		27-21162	27-82 TASK 815
		27-21171	27-81 TASK 815
		27-21172	27-82 TASK 816
		27-21181	27-81 TASK 816
		27-21182	27-82 TASK 817
		27-21241	27-51 TASK 838
		27-21242	27-52 TASK 832
		27-28801	27-51 TASK 841
		27-28802	27-52 TASK 835
		27-28841	27-51 TASK 842
		27-28851	27-51 TASK 869
		27-28852	27-52 TASK 837
		27-28862	27-52 TASK 836

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.25
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		30-36121	30-31 TASK 801
		30-36122	30-31 TASK 802
		30-36123	30-31 TASK 803
		30-36421	30-31 TASK 804
		30-36423	30-31 TASK 805
		30-36521	30-31 TASK 806
		30-36523	30-31 TASK 810
		30-36641	30-31 TASK 807
		30-36642	30-31 TASK 808
		30-36643	30-31 TASK 809
		31-50007	31-44 TASK 821
		31-50008	31-44 TASK 822
		31-50011	31-44 TASK 801
		31-50012	31-44 TASK 802
		31-50017	31-44 TASK 823
		31-50018	31-44 TASK 824
		31-50027	31-44 TASK 825
		31-50028	31-44 TASK 826
		31-50091	31-44 TASK 819
		31-50092	31-44 TASK 820
		31-50201	31-43 TASK 852
		31-50202	31-43 TASK 853
		31-50418	31-44 TASK 885
		31-50427	31-44 TASK 886
		31-50428	31-44 TASK 887
		31-50437	31-44 TASK 888
		31-50438	31-44 TASK 889
		31-50447	31-44 TASK 890
		31-50448	31-44 TASK 891
		31-51013	31-44 TASK 863
		31-51023	31-44 TASK 865
		31-51024	31-44 TASK 866
		31-51025	31-43 TASK 803
		31-51026	31-43 TASK 804

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.26
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		31-51033	31-44 TASK 869
		31-51034	31-44 TASK 870
		31-51043	31-44 TASK 871
		31-51044	31-44 TASK 872
		31-51141	31-44 TASK 827
		31-51143	31-44 TASK 831
		31-51341	31-44 TASK 833
		31-51343	31-44 TASK 835
		31-51411	34-61 TASK 913
		31-51412	34-61 TASK 914
		31-51413	34-61 TASK 815
		31-51414	34-61 TASK 889
		31-51421	34-61 TASK 888
		31-51422	34-61 TASK 814
		31-51423	34-61 TASK 815
		31-51424	34-61 TASK 889
		31-51531	31-44 TASK 837
		31-51532	31-44 TASK 838
		31-51533	31-44 TASK 839
		31-51534	31-44 TASK 840
		31-51731	31-44 TASK 841
		31-51732	31-44 TASK 842
		31-51733	31-44 TASK 843
		31-51734	31-44 TASK 844
		31-52013	31-43 TASK 866
		31-52014	31-43 TASK 867
		31-52101	31-41 TASK 817
		31-52112	31-41 TASK 820
		31-52121	31-41 TASK 821
		31-52122	31-41 TASK 822
		31-52601	31-41 TASK 832
		31-52602	31-41 TASK 833
		31-53401	31-41 TASK 832
		31-53402	31-41 TASK 833

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.27
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54101	31-41 TASK 834
		31-54102	31-41 TASK 835
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-54601	31-41 TASK 840
		31-54602	31-41 TASK 841
		31-55401	31-41 TASK 840
		31-55402	31-41 TASK 841
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56102	31-41 TASK 845
		31-56104	31-45 TASK 811
		31-56111	31-41 TASK 846
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-56601	31-41 TASK 842
		31-56602	31-41 TASK 843
		31-58013	31-43 TASK 872
		31-58014	31-43 TASK 873
		31-58101	31-41 TASK 852
		31-58102	31-41 TASK 853
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-58601	31-41 TASK 992
		31-58602	31-41 TASK 993
		31-59401	31-41 TASK 992
		31-59402	31-41 TASK 993
		31-61011	31-43 TASK 861
		31-61012	31-43 TASK 862
		31-61020	31-43 TASK 863
		31-61031	31-41 TASK 862
		31-61032	31-41 TASK 891

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.28
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		31-61041	31-43 TASK 835
		31-61042	31-43 TASK 836
		31-61051	31-43 TASK 837
		31-61052	31-43 TASK 838
		31-61061	31-43 TASK 839
		31-61062	31-43 TASK 840
		31-61071	31-43 TASK 841
		31-61072	31-43 TASK 842
		31-61111	31-43 TASK 856
		31-61112	31-43 TASK 856
		31-61113	31-43 TASK 856
		31-61114	31-43 TASK 856
		31-61115	31-43 TASK 856
		31-61116	31-43 TASK 856
		31-61117	31-43 TASK 856
		31-61118	31-43 TASK 856
		31-62011	31-43 TASK 843
		31-62020	31-43 TASK 845
		31-62071	31-43 TASK 850
		31-68801	31-43 TASK 892
		31-68802	31-43 TASK 893
		31-68811	31-42 TASK 908
		31-68832	31-42 TASK 908
		31-69101	31-42 TASK 801
		31-69102	31-42 TASK 801
		31-69117	31-42 TASK 806
		31-69118	31-42 TASK 806
		31-69201	31-42 TASK 809
		31-69202	31-42 TASK 809
		31-69219	31-42 TASK 814
		31-69220	31-42 TASK 814
		31-69301	31-42 TASK 817
		31-69302	31-42 TASK 817
		31-69317	31-42 TASK 822

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.29
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		31-69318	31-42 TASK 822
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69433	31-42 TASK 838
		31-69434	31-42 TASK 838
		31-69439	31-42 TASK 840
		31-69440	31-42 TASK 840
		31-69496	31-42 TASK 915
		31-69497	31-42 TASK 915
		31-69501	31-42 TASK 852
		31-69502	31-42 TASK 852
		31-69533	31-42 TASK 854
		31-69534	31-42 TASK 854
		31-69535	31-42 TASK 854
		31-69536	31-42 TASK 854
		31-69539	31-42 TASK 855
		31-69540	31-42 TASK 855
		31-69541	31-42 TASK 855
		31-69542	31-42 TASK 855
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		31-69635	31-42 TASK 868
		31-69636	31-42 TASK 868
		31-69641	31-42 TASK 870
		31-69642	31-42 TASK 870
		31-70011	31-51 TASK 801
		31-70012	31-51 TASK 821
		31-70021	31-51 TASK 802
		31-70022	31-51 TASK 822
		31-78801	31-51 TASK 801
		31-78802	31-51 TASK 821
		31-78841	31-51 TASK 825
		31-78851	31-51 TASK 826
		31-78852	31-51 TASK 898

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.30
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		31-78862	31-51 TASK 827
		31-79401	31-51 TASK 804
		31-79402	31-51 TASK 805
		31-79437	31-51 TASK 815
		31-79439	31-51 TASK 816
		31-79501	31-51 TASK 836
		31-79502	31-51 TASK 837
		31-79503	31-51 TASK 838
		31-79504	31-51 TASK 839
		31-79537	31-51 TASK 852
		31-79539	31-51 TASK 854
		31-79542	31-51 TASK 857
		31-79544	31-51 TASK 859
		31-79603	31-51 TASK 860
		31-79604	31-51 TASK 861
		31-79642	31-51 TASK 872
		31-79644	31-51 TASK 873
		31-89417	31-42 TASK 915
		31-89418	31-42 TASK 915
		31-89617	31-42 TASK 916
		31-89618	31-42 TASK 916
		31-89619	31-42 TASK 916
		31-89620	31-42 TASK 916
		34-25101	34-11 TASK 801
		34-25102	34-11 TASK 802
		34-25103	34-11 TASK 803
		34-25201	34-11 TASK 804
		34-25202	34-11 TASK 805
		34-25203	34-11 TASK 806
		34-25601	34-21 TASK 808
		34-25603	34-21 TASK 885
		34-25800	34-21 TASK 809
		34-26101	34-21 TASK 810
		34-26102	34-21 TASK 839

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.31
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		34-26103	34-21 TASK 840
		34-26201	34-21 TASK 843
		34-26202	34-21 TASK 844
		34-26203	34-21 TASK 845
		34-28801	34-21 TASK 848
		34-28810	34-21 TASK 849
		34-28813	34-21 TASK 813
		34-28816	34-21 TASK 814
		34-28824	34-21 TASK 850
		34-28827	34-21 TASK 851
		34-28830	34-21 TASK 852
		34-28835	34-21 TASK 853
		34-28838	34-21 TASK 854
		34-29101	34-21 TASK 893
		34-29102	34-21 TASK 815
		34-29105	34-21 TASK 816
		34-29107	34-21 TASK 817
		34-29115	34-21 TASK 857
		34-29120	34-21 TASK 894
		34-29201	34-21 TASK 858
		34-29202	34-21 TASK 859
		34-29204	34-21 TASK 860
		34-29216	34-21 TASK 862
		34-29301	34-21 TASK 895
		34-29303	34-21 TASK 864
		34-29306	34-21 TASK 865
		34-29308	34-21 TASK 866
		34-29317	34-21 TASK 869
		34-29320	34-21 TASK 896
		34-30700	34-21 TASK 870
		34-30711	34-21 TASK 818
		34-30712	34-21 TASK 871
		34-30713	34-21 TASK 872
		34-30760	34-21 TASK 819

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.32
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		34-31601	34-21 TASK 821
		34-32601	34-21 TASK 822
		34-32803	34-21 TASK 822
		34-33800	34-21 TASK 886
		34-34603	34-21 TASK 887
		34-35603	34-21 TASK 888
		34-36800	34-21 TASK 890
		34-38310	34-21 TASK 819
		34-38801	34-21 TASK 874
		34-38820	34-21 TASK 898
		34-39101	34-21 TASK 825
		34-39103	34-21 TASK 826
		34-39106	34-21 TASK 827
		34-39111	34-21 TASK 828
		34-39201	34-21 TASK 871
		34-39204	34-21 TASK 876
		34-39207	34-21 TASK 877
		34-39301	34-21 TASK 879
		34-39305	34-21 TASK 880
		34-39308	34-21 TASK 881
		34-39312	34-21 TASK 882
		34-71011	34-61 TASK 905
		34-71012	34-61 TASK 906
		34-71060	34-90 TASK 801
		73-03131	73-28 TASK 831
		73-03132	73-28 TASK 837
		73-07011	73-34 TASK 801
		73-07012	73-34 TASK 801
		73-07021	73-34 TASK 802
		73-07022	73-34 TASK 802
		73-07041	73-34 TASK 803
		73-07042	73-34 TASK 803
		73-07051	73-34 TASK 804
		73-07052	73-34 TASK 804

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.33
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		73-07071	73-34 TASK 805
		73-07072	73-34 TASK 805
		73-07081	73-34 TASK 806
		73-07082	73-34 TASK 806
		73-07091	73-28 TASK 836
		73-07092	73-28 TASK 836
		73-07121	73-28 TASK 835
		73-07122	73-28 TASK 835
		73-08025	73-27 TASK 870
		73-08026	73-27 TASK 870
		73-08031	73-28 TASK 845
		73-08032	73-28 TASK 846
		73-08045	73-27 TASK 873
		73-08046	73-27 TASK 874
		73-08055	73-27 TASK 875
		73-08056	73-27 TASK 876
		73-08061	73-28 TASK 834
		73-08062	73-28 TASK 834
		73-08071	73-28 TASK 841
		73-08072	73-28 TASK 841
		73-08081	73-27 TASK 827
		73-08082	73-27 TASK 827
		73-08091	73-28 TASK 855
		73-08092	73-28 TASK 855
		73-08105	73-27 TASK 871
		73-08106	73-27 TASK 871
		73-08111	73-28 TASK 856
		73-08112	73-28 TASK 856
		73-08122	73-98 TASK 801
		73-08125	73-28 TASK 844
		73-08126	73-28 TASK 844
		73-08245	73-27 TASK 873
		73-08246	73-27 TASK 874
		73-08255	73-27 TASK 875

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.34
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		73-08256	73-27 TASK 876
		73-08281	73-27 TASK 827
		73-08282	73-27 TASK 827
		73-08311	73-98 TASK 801
		73-08312	73-98 TASK 801
		73-08445	73-27 TASK 873
		73-08446	73-27 TASK 874
		73-08455	73-27 TASK 875
		73-08456	73-27 TASK 876
		73-08481	73-27 TASK 827
		73-08482	73-27 TASK 827
		73-08645	73-27 TASK 873
		73-08646	73-27 TASK 874
		73-08651	73-98 TASK 801
		73-08652	73-98 TASK 801
		73-08681	73-27 TASK 872
		73-08682	73-27 TASK 872
		73-13111	73-21 TASK 842
		73-13112	73-21 TASK 842
		73-14621	73-22 TASK 839
		73-14622	73-22 TASK 839
		73-23111	73-21 TASK 842
		73-23112	73-21 TASK 842
		73-24621	73-22 TASK 839
		73-24622	73-22 TASK 839
		73-34771	73-22 TASK 846
		73-34772	73-22 TASK 846
		73-34851	73-22 TASK 851
		73-34852	73-22 TASK 851
		73-35491	73-28 TASK 849
		73-35492	73-28 TASK 851
		76-15211	76-11 TASK 807
		76-15212	76-11 TASK 807
		76-25211	76-11 TASK 808

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.35
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		76-25212	76-11 TASK 808
		76-35201	76-11 TASK 806
		76-35202	76-11 TASK 806
		77-14601	77-12 TASK 814
		77-14602	77-12 TASK 814
		77-14611	77-12 TASK 816
		77-14612	77-12 TASK 816
		77-14701	77-12 TASK 813
		77-14702	77-12 TASK 813
		77-14901	77-12 TASK 815
		77-14902	77-12 TASK 815
		77-24601	77-12 TASK 814
		77-24602	77-12 TASK 814
		77-24611	77-12 TASK 816
		77-24612	77-12 TASK 816
		77-24701	77-12 TASK 813
		77-24702	77-12 TASK 813
		77-24901	77-12 TASK 815
		77-24902	77-12 TASK 815
		77-37911	77-12 TASK 817
		77-37912	77-12 TASK 818
		78-00011	78-34 TASK 836
		78-00012	78-34 TASK 837
		78-00021	78-34 TASK 838
		78-00022	78-34 TASK 838
		78-00031	78-34 TASK 838
		78-00032	78-34 TASK 838
		78-00041	78-34 TASK 838
		78-00042	78-34 TASK 838
		78-00051	78-34 TASK 838
		78-00052	78-34 TASK 838
		78-00061	78-34 TASK 839
		78-00062	78-34 TASK 840
		78-00071	78-34 TASK 841

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.36
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 42	Maintenance memo shows on the MAT: FLIGHT CONTROLS (R).	(continued)	
		78-00072	78-34 TASK 842
		78-00081	78-34 TASK 843
		78-00082	78-34 TASK 843
		78-00091	78-34 TASK 843
		78-00092	78-34 TASK 843
		78-15041	78-36 TASK 857
		78-15042	78-36 TASK 858
		78-15061	78-36 TASK 859
		78-15062	78-36 TASK 860
		78-25041	78-36 TASK 861
		78-25042	78-36 TASK 862
		78-25061	78-36 TASK 863
		78-25062	78-36 TASK 864
		78-32081	78-31 TASK 801
		78-32082	78-31 TASK 801
		78-32111	78-31 TASK 801
		78-32112	78-31 TASK 801
		78-35001	78-34 TASK 850
		78-35002	78-34 TASK 851
		78-35011	78-34 TASK 852
		78-35012	78-34 TASK 853
		78-35021	78-34 TASK 854
		78-35022	78-34 TASK 855
		78-35051	78-36 TASK 867
		78-35052	78-36 TASK 868
		78-35071	78-36 TASK 869
		78-35072	78-36 TASK 870
		78-35081	78-31 TASK 802
		78-35082	78-31 TASK 802
		78-35111	78-31 TASK 802
		78-35112	78-31 TASK 802
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	21-16205	21-25 TASK 823
		23-81001	23-91 TASK 801

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.37
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81005	23-91 TASK 805
		23-81006	23-91 TASK 806
		23-81007	23-91 TASK 807
		24-11780	24-53 TASK 805
		24-11781	24-51 TASK 837
		24-11784	24-51 TASK 836
		24-11785	24-51 TASK 836
		24-11786	24-51 TASK 833
		24-11787	24-32 TASK 817
		24-11790	24-08 TASK 833
		24-11793	24-08 TASK 834
		24-11795	24-08 TASK 804
		24-11796	24-08 TASK 804
		24-12051	24-32 TASK 819
		24-12056	24-32 TASK 820
		24-12057	24-08 TASK 836
		24-12122	24-08 TASK 835
		24-12124	24-51 TASK 840
		24-12125	24-51 TASK 841
		24-12126	24-51 TASK 841
		24-12127	24-51 TASK 842
		24-12800	24-08 TASK 805
		24-12801	24-08 TASK 805
		24-13801	24-61 TASK 805
		24-13814	24-33 TASK 817
		24-13815	24-61 TASK 806
		24-13816	24-32 TASK 831
		24-13817	24-33 TASK 818
		24-13818	24-53 TASK 807
		24-18801	24-09 TASK 806
		24-18802	24-09 TASK 807

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.38
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		24-78841	24-08 TASK 860
		24-78842	24-08 TASK 862
		24-78861	24-08 TASK 861
		24-78862	24-08 TASK 863
		27-10314	27-11 TASK 847
		27-10315	27-11 TASK 919
		27-10416	27-21 TASK 833
		27-10804	27-21 TASK 870
		27-10805	27-21 TASK 871
		27-12500	27-11 TASK 851
		27-12501	27-11 TASK 897
		27-12600	27-31 TASK 834
		27-12601	27-31 TASK 877
		27-12603	27-31 TASK 878
		27-12604	27-31 TASK 879
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-14006	27-02 TASK 935
		27-14007	27-02 TASK 936
		27-14008	27-02 TASK 937
		27-14009	27-02 TASK 925
		27-14010	27-02 TASK 926
		27-14011	27-02 TASK 927
		27-14018	27-02 TASK 813
		27-14019	27-02 TASK 941
		27-14020	27-02 TASK 942
		27-14024	27-02 TASK 806
		27-14025	27-02 TASK 943
		27-14026	27-02 TASK 944
		27-14027	27-02 TASK 945
		27-14030	27-02 TASK 905
		27-14031	27-02 TASK 906

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.39
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		27-14032	27-02 TASK 907
		27-14033	27-02 TASK 908
		27-14044	27-02 TASK 992
		27-14045	27-02 TASK 993
		27-14046	27-02 TASK 994
		27-14047	27-02 TASK 995
		27-14048	27-02 TASK 996
		27-14049	27-02 TASK 997
		27-14050	27-02 TASK 998
		27-14051	27-02 TASK 999
		27-14052	27-02 TASK A00
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-18510	27-02 TASK 894
		27-18550	27-02 TASK 894
		27-18560	27-02 TASK 894
		27-18811	27-02 TASK 901
		27-18822	27-02 TASK 919
		27-18833	27-02 TASK 920
		27-19101	27-02 TASK 974
		27-19104	27-02 TASK 975
		27-19150	27-02 TASK 902
		27-19160	27-02 TASK 902
		27-19190	27-02 TASK 902
		27-19201	27-02 TASK 979
		27-19230	27-02 TASK 903
		27-19240	27-02 TASK 924
		27-19270	27-02 TASK 921
		27-19280	27-02 TASK 922
		27-19301	27-02 TASK 983
		27-19307	27-02 TASK 984
		27-19350	27-02 TASK 923
		27-19390	27-02 TASK 921

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.40
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		27-19430	27-02 TASK 922
		27-19830	27-02 TASK 923
		27-19870	27-02 TASK 921
		27-19910	27-02 TASK 922
		27-19950	27-02 TASK 923
		27-20251	27-51 TASK 863
		27-20252	27-52 TASK 809
		27-20261	27-51 TASK 809
		27-20262	27-52 TASK 810
		27-20271	27-51 TASK 810
		27-20272	27-52 TASK 811
		27-20691	27-51 TASK 811
		27-20692	27-52 TASK 812
		27-20701	27-51 TASK 812
		27-20702	27-52 TASK 813
		27-20711	27-51 TASK 813
		27-20712	27-52 TASK 814
		27-20891	27-51 TASK 823
		27-20892	27-52 TASK 826
		27-21161	27-81 TASK 814
		27-21162	27-82 TASK 815
		27-21171	27-81 TASK 815
		27-21172	27-82 TASK 816
		27-21181	27-81 TASK 816
		27-21182	27-82 TASK 817
		27-21241	27-51 TASK 838
		27-21242	27-52 TASK 832
		27-28801	27-51 TASK 841
		27-28802	27-52 TASK 835
		27-28841	27-51 TASK 842
		27-28851	27-51 TASK 869
		27-28852	27-52 TASK 837
		27-28862	27-52 TASK 836
		30-36121	30-31 TASK 801

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.41
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		30-36122	30-31 TASK 802
		30-36123	30-31 TASK 803
		30-36421	30-31 TASK 804
		30-36423	30-31 TASK 805
		30-36521	30-31 TASK 806
		30-36523	30-31 TASK 810
		30-36641	30-31 TASK 807
		30-36642	30-31 TASK 808
		30-36643	30-31 TASK 809
		31-50007	31-44 TASK 821
		31-50008	31-44 TASK 822
		31-50011	31-44 TASK 801
		31-50012	31-44 TASK 802
		31-50017	31-44 TASK 823
		31-50018	31-44 TASK 824
		31-50027	31-44 TASK 825
		31-50028	31-44 TASK 826
		31-50091	31-44 TASK 819
		31-50092	31-44 TASK 820
		31-50201	31-43 TASK 852
		31-50202	31-43 TASK 853
		31-50418	31-44 TASK 885
		31-50427	31-44 TASK 886
		31-50428	31-44 TASK 887
		31-50437	31-44 TASK 888
		31-50438	31-44 TASK 889
		31-50447	31-44 TASK 890
		31-50448	31-44 TASK 891
		31-51013	31-44 TASK 863
		31-51023	31-44 TASK 865
		31-51024	31-44 TASK 866
		31-51025	31-43 TASK 803
		31-51026	31-43 TASK 804
		31-51033	31-44 TASK 869

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.42
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		31-51034	31-44 TASK 870
		31-51043	31-44 TASK 871
		31-51044	31-44 TASK 872
		31-51141	31-44 TASK 827
		31-51143	31-44 TASK 831
		31-51341	31-44 TASK 833
		31-51343	31-44 TASK 835
		31-51411	34-61 TASK 913
		31-51412	34-61 TASK 914
		31-51413	34-61 TASK 815
		31-51414	34-61 TASK 889
		31-51421	34-61 TASK 888
		31-51422	34-61 TASK 814
		31-51423	34-61 TASK 815
		31-51424	34-61 TASK 889
		31-51531	31-44 TASK 837
		31-51532	31-44 TASK 838
		31-51533	31-44 TASK 839
		31-51534	31-44 TASK 840
		31-51731	31-44 TASK 841
		31-51732	31-44 TASK 842
		31-51733	31-44 TASK 843
		31-51734	31-44 TASK 844
		31-52013	31-43 TASK 866
		31-52014	31-43 TASK 867
		31-52101	31-41 TASK 817
		31-52112	31-41 TASK 820
		31-52121	31-41 TASK 821
		31-52122	31-41 TASK 822
		31-52601	31-41 TASK 832
		31-52602	31-41 TASK 833
		31-53401	31-41 TASK 832
		31-53402	31-41 TASK 833
		31-54013	31-43 TASK 868

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.43
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		31-54014	31-43 TASK 869
		31-54101	31-41 TASK 834
		31-54102	31-41 TASK 835
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-54601	31-41 TASK 840
		31-54602	31-41 TASK 841
		31-55401	31-41 TASK 840
		31-55402	31-41 TASK 841
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56102	31-41 TASK 845
		31-56104	31-45 TASK 811
		31-56111	31-41 TASK 846
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-56601	31-41 TASK 842
		31-56602	31-41 TASK 843
		31-58013	31-43 TASK 872
		31-58014	31-43 TASK 873
		31-58101	31-41 TASK 852
		31-58102	31-41 TASK 853
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-58601	31-41 TASK 992
		31-58602	31-41 TASK 993
		31-59401	31-41 TASK 992
		31-59402	31-41 TASK 993
		31-61011	31-43 TASK 861
		31-61012	31-43 TASK 862
		31-61020	31-43 TASK 863
		31-61031	31-41 TASK 862
		31-61032	31-41 TASK 891
		31-61041	31-43 TASK 835

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.44
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		31-61042	31-43 TASK 836
		31-61051	31-43 TASK 837
		31-61052	31-43 TASK 838
		31-61061	31-43 TASK 839
		31-61062	31-43 TASK 840
		31-61071	31-43 TASK 841
		31-61072	31-43 TASK 842
		31-61111	31-43 TASK 856
		31-61112	31-43 TASK 856
		31-61113	31-43 TASK 856
		31-61114	31-43 TASK 856
		31-61115	31-43 TASK 856
		31-61116	31-43 TASK 856
		31-61117	31-43 TASK 856
		31-61118	31-43 TASK 856
		31-62011	31-43 TASK 843
		31-62020	31-43 TASK 845
		31-62071	31-43 TASK 850
		31-68801	31-43 TASK 892
		31-68802	31-43 TASK 893
		31-68811	31-42 TASK 908
		31-68832	31-42 TASK 908
		31-69101	31-42 TASK 801
		31-69102	31-42 TASK 801
		31-69117	31-42 TASK 806
		31-69118	31-42 TASK 806
		31-69201	31-42 TASK 809
		31-69202	31-42 TASK 809
		31-69219	31-42 TASK 814
		31-69220	31-42 TASK 814
		31-69301	31-42 TASK 817
		31-69302	31-42 TASK 817
		31-69317	31-42 TASK 822
		31-69318	31-42 TASK 822

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.45
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69433	31-42 TASK 838
		31-69434	31-42 TASK 838
		31-69439	31-42 TASK 840
		31-69440	31-42 TASK 840
		31-69496	31-42 TASK 915
		31-69497	31-42 TASK 915
		31-69501	31-42 TASK 852
		31-69502	31-42 TASK 852
		31-69533	31-42 TASK 854
		31-69534	31-42 TASK 854
		31-69535	31-42 TASK 854
		31-69536	31-42 TASK 854
		31-69539	31-42 TASK 855
		31-69540	31-42 TASK 855
		31-69541	31-42 TASK 855
		31-69542	31-42 TASK 855
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		31-69635	31-42 TASK 868
		31-69636	31-42 TASK 868
		31-69641	31-42 TASK 870
		31-69642	31-42 TASK 870
		31-70011	31-51 TASK 801
		31-70012	31-51 TASK 821
		31-70021	31-51 TASK 802
		31-70022	31-51 TASK 822
		31-78801	31-51 TASK 801
		31-78802	31-51 TASK 821
		31-78841	31-51 TASK 825
		31-78851	31-51 TASK 826
		31-78852	31-51 TASK 898
		31-78862	31-51 TASK 827

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.46
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		31-79401	31-51 TASK 804
		31-79402	31-51 TASK 805
		31-79437	31-51 TASK 815
		31-79439	31-51 TASK 816
		31-79501	31-51 TASK 836
		31-79502	31-51 TASK 837
		31-79503	31-51 TASK 838
		31-79504	31-51 TASK 839
		31-79537	31-51 TASK 852
		31-79539	31-51 TASK 854
		31-79542	31-51 TASK 857
		31-79544	31-51 TASK 859
		31-79603	31-51 TASK 860
		31-79604	31-51 TASK 861
		31-79642	31-51 TASK 872
		31-79644	31-51 TASK 873
		31-89417	31-42 TASK 915
		31-89418	31-42 TASK 915
		31-89617	31-42 TASK 916
		31-89618	31-42 TASK 916
		31-89619	31-42 TASK 916
		31-89620	31-42 TASK 916
		34-25101	34-11 TASK 801
		34-25102	34-11 TASK 802
		34-25103	34-11 TASK 803
		34-25201	34-11 TASK 804
		34-25202	34-11 TASK 805
		34-25203	34-11 TASK 806
		34-25601	34-21 TASK 808
		34-25603	34-21 TASK 885
		34-25800	34-21 TASK 809
		34-26101	34-21 TASK 810
		34-26102	34-21 TASK 839
		34-26103	34-21 TASK 840

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.47
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		34-26201	34-21 TASK 843
		34-26202	34-21 TASK 844
		34-26203	34-21 TASK 845
		34-28801	34-21 TASK 848
		34-28810	34-21 TASK 849
		34-28813	34-21 TASK 813
		34-28816	34-21 TASK 814
		34-28824	34-21 TASK 850
		34-28827	34-21 TASK 851
		34-28830	34-21 TASK 852
		34-28835	34-21 TASK 853
		34-28838	34-21 TASK 854
		34-29101	34-21 TASK 893
		34-29102	34-21 TASK 815
		34-29105	34-21 TASK 816
		34-29107	34-21 TASK 817
		34-29115	34-21 TASK 857
		34-29120	34-21 TASK 894
		34-29201	34-21 TASK 858
		34-29202	34-21 TASK 859
		34-29204	34-21 TASK 860
		34-29216	34-21 TASK 862
		34-29301	34-21 TASK 895
		34-29303	34-21 TASK 864
		34-29306	34-21 TASK 865
		34-29308	34-21 TASK 866
		34-29317	34-21 TASK 869
		34-29320	34-21 TASK 896
		34-30700	34-21 TASK 870
		34-30711	34-21 TASK 818
		34-30712	34-21 TASK 871
		34-30713	34-21 TASK 872
		34-30760	34-21 TASK 819
		34-31601	34-21 TASK 821

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.48
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		34-32601	34-21 TASK 822
		34-32803	34-21 TASK 822
		34-33800	34-21 TASK 886
		34-34603	34-21 TASK 887
		34-35603	34-21 TASK 888
		34-36800	34-21 TASK 890
		34-38310	34-21 TASK 819
		34-38801	34-21 TASK 874
		34-38820	34-21 TASK 898
		34-39101	34-21 TASK 825
		34-39103	34-21 TASK 826
		34-39106	34-21 TASK 827
		34-39111	34-21 TASK 828
		34-39201	34-21 TASK 871
		34-39204	34-21 TASK 876
		34-39207	34-21 TASK 877
		34-39301	34-21 TASK 879
		34-39305	34-21 TASK 880
		34-39308	34-21 TASK 881
		34-39312	34-21 TASK 882
		34-71011	34-61 TASK 905
		34-71012	34-61 TASK 906
		34-71060	34-90 TASK 801
		73-03131	73-28 TASK 831
		73-03132	73-28 TASK 837
		73-07011	73-34 TASK 801
		73-07012	73-34 TASK 801
		73-07021	73-34 TASK 802
		73-07022	73-34 TASK 802
		73-07041	73-34 TASK 803
		73-07042	73-34 TASK 803
		73-07051	73-34 TASK 804
		73-07052	73-34 TASK 804
		73-07071	73-34 TASK 805

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.49
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		73-07072	73-34 TASK 805
		73-07081	73-34 TASK 806
		73-07082	73-34 TASK 806
		73-07091	73-28 TASK 836
		73-07092	73-28 TASK 836
		73-07121	73-28 TASK 835
		73-07122	73-28 TASK 835
		73-08025	73-27 TASK 870
		73-08026	73-27 TASK 870
		73-08031	73-28 TASK 845
		73-08032	73-28 TASK 846
		73-08045	73-27 TASK 873
		73-08046	73-27 TASK 874
		73-08055	73-27 TASK 875
		73-08056	73-27 TASK 876
		73-08061	73-28 TASK 834
		73-08062	73-28 TASK 834
		73-08071	73-28 TASK 841
		73-08072	73-28 TASK 841
		73-08081	73-27 TASK 827
		73-08082	73-27 TASK 827
		73-08091	73-28 TASK 855
		73-08092	73-28 TASK 855
		73-08105	73-27 TASK 871
		73-08106	73-27 TASK 871
		73-08111	73-28 TASK 856
		73-08112	73-28 TASK 856
		73-08122	73-98 TASK 801
		73-08125	73-28 TASK 844
		73-08126	73-28 TASK 844
		73-08245	73-27 TASK 873
		73-08246	73-27 TASK 874
		73-08255	73-27 TASK 875
		73-08256	73-27 TASK 876

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.50
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		73-08281	73-27 TASK 827
		73-08282	73-27 TASK 827
		73-08311	73-98 TASK 801
		73-08312	73-98 TASK 801
		73-08445	73-27 TASK 873
		73-08446	73-27 TASK 874
		73-08455	73-27 TASK 875
		73-08456	73-27 TASK 876
		73-08481	73-27 TASK 827
		73-08482	73-27 TASK 827
		73-08645	73-27 TASK 873
		73-08646	73-27 TASK 874
		73-08651	73-98 TASK 801
		73-08652	73-98 TASK 801
		73-08681	73-27 TASK 872
		73-08682	73-27 TASK 872
		73-13111	73-21 TASK 842
		73-13112	73-21 TASK 842
		73-14621	73-22 TASK 839
		73-14622	73-22 TASK 839
		73-23111	73-21 TASK 842
		73-23112	73-21 TASK 842
		73-24621	73-22 TASK 839
		73-24622	73-22 TASK 839
		73-34771	73-22 TASK 846
		73-34772	73-22 TASK 846
		73-34851	73-22 TASK 851
		73-34852	73-22 TASK 851
		73-35491	73-28 TASK 849
		73-35492	73-28 TASK 851
		76-15211	76-11 TASK 807
		76-15212	76-11 TASK 807
		76-25211	76-11 TASK 808
		76-25212	76-11 TASK 808

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.51
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		76-35201	76-11 TASK 806
		76-35202	76-11 TASK 806
		77-14601	77-12 TASK 814
		77-14602	77-12 TASK 814
		77-14611	77-12 TASK 816
		77-14612	77-12 TASK 816
		77-14701	77-12 TASK 813
		77-14702	77-12 TASK 813
		77-14901	77-12 TASK 815
		77-14902	77-12 TASK 815
		77-24601	77-12 TASK 814
		77-24602	77-12 TASK 814
		77-24611	77-12 TASK 816
		77-24612	77-12 TASK 816
		77-24701	77-12 TASK 813
		77-24702	77-12 TASK 813
		77-24901	77-12 TASK 815
		77-24902	77-12 TASK 815
		77-37911	77-12 TASK 817
		77-37912	77-12 TASK 818
		78-00011	78-34 TASK 836
		78-00012	78-34 TASK 837
		78-00021	78-34 TASK 838
		78-00022	78-34 TASK 838
		78-00031	78-34 TASK 838
		78-00032	78-34 TASK 838
		78-00041	78-34 TASK 838
		78-00042	78-34 TASK 838
		78-00051	78-34 TASK 838
		78-00052	78-34 TASK 838
		78-00061	78-34 TASK 839
		78-00062	78-34 TASK 840
		78-00071	78-34 TASK 841
		78-00072	78-34 TASK 842

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.52
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 480 43	Maintenance memo shows on the MAT: FLIGHT CONTROLS (C).	(continued)	
		78-00081	78-34 TASK 843
		78-00082	78-34 TASK 843
		78-00091	78-34 TASK 843
		78-00092	78-34 TASK 843
		78-15041	78-36 TASK 857
		78-15042	78-36 TASK 858
		78-15061	78-36 TASK 859
		78-15062	78-36 TASK 860
		78-25041	78-36 TASK 861
		78-25042	78-36 TASK 862
		78-25061	78-36 TASK 863
		78-25062	78-36 TASK 864
		78-32081	78-31 TASK 801
		78-32082	78-31 TASK 801
		78-32111	78-31 TASK 801
		78-32112	78-31 TASK 801
		78-35001	78-34 TASK 850
		78-35002	78-34 TASK 851
		78-35011	78-34 TASK 852
		78-35012	78-34 TASK 853
		78-35021	78-34 TASK 854
		78-35022	78-34 TASK 855
		78-35051	78-36 TASK 867
		78-35052	78-36 TASK 868
		78-35071	78-36 TASK 869
		78-35072	78-36 TASK 870
		78-35081	78-31 TASK 802
		78-35082	78-31 TASK 802
		78-35111	78-31 TASK 802
		78-35112	78-31 TASK 802
270 486 41	Maintenance memo shows on the MAT: PSA (LEFT).	24-50221	24-35 TASK 808
		24-50371	24-35 TASK 803

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.53
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
270 486 42	Maintenance memo shows on the MAT: PSA (RIGHT).	24-50222 24-50372	24-35 TASK 808 24-35 TASK 803
270 486 43	Maintenance memo shows on the MAT: PSA (CENTER).	24-50223 24-50373	24-35 TASK 808 24-35 TASK 803
270 811 41	Flight control shutoff valve power VALVE CLOSED light: does not come on with switch set to SHUTOFF - L hydraulic system for WING.		27-02 TASK 966
270 811 42	Flight control shutoff valve power VALVE CLOSED light: does not come on with switch set to SHUTOFF - R hydraulic system for WING.		27-02 TASK 967
270 811 43	Flight control shutoff valve power VALVE CLOSED light: does not come on with switch set to SHUTOFF - C hydraulic system for WING.		27-02 TASK 973
270 812 41	Flight control shutoff valve power VALVE CLOSED light: does not come on with switch set to SHUTOFF - L hydraulic system for TAIL.		27-02 TASK 968
270 812 42	Flight control shutoff valve power VALVE CLOSED light: does not come on with switch set to SHUTOFF - R hydraulic system for TAIL.		27-02 TASK 969
270 812 43	Flight control shutoff valve power VALVE CLOSED light: does not come on with switch set to SHUTOFF - C hydraulic system for TAIL.		27-02 TASK 970
270 821 00	Flight controls maintenance page problem.		27-02 TASK 972
271 011 00	CONTROL WHEEL XDCR (EICAS STATUS)	23-81001 23-81002 23-81003 27-12000 27-12001 27-12002 27-12003 27-12004 27-12005 27-12007 27-12008 27-12009 27-12010	23-91 TASK 801 23-91 TASK 802 23-91 TASK 803 27-11 TASK 846 27-11 TASK 907 27-11 TASK 908 27-11 TASK 834 27-11 TASK 890 27-11 TASK 891 27-11 TASK 909 27-11 TASK 910 27-11 TASK 911 27-11 TASK 849

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.54
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
271 011 00	CONTROL WHEEL XDCC (EICAS STATUS)	(continued)	
		27-12011	27-11 TASK 850
		27-12012	27-11 TASK 884
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-13008	27-02 TASK 807
		27-13009	27-02 TASK 877
		27-13010	27-02 TASK 878
		27-13011	27-02 TASK 879
		27-13020	27-02 TASK 818
		27-13022	27-02 TASK 829
		27-13023	27-02 TASK 830
		27-13025	27-02 TASK 819
		27-13026	27-02 TASK 832
		27-13027	27-02 TASK 833
		27-13046	27-02 TASK 805
		27-13047	27-02 TASK 862
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-15009	27-02 TASK 802
		27-15010	27-02 TASK 849
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-19101	27-02 TASK 974
		27-19201	27-02 TASK 979
		27-19301	27-02 TASK 983
271 021 00	BANK ANGLE PROTECT (EICAS STATUS)	22-11305	34-31 TASK 868
		22-11315	34-31 TASK 869
		22-11325	34-31 TASK 870
		22-11330	34-31 TASK 871
		22-11345	34-31 TASK 872

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.55
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
271 021 00	BANK ANGLE PROTECT (EICAS STATUS)	(continued)	
		22-11355	34-31 TASK 869
		22-11365	34-31 TASK 870
		22-11375	34-31 TASK 872
		22-11385	34-31 TASK 872
		22-11395	34-31 TASK 869
		22-11555	34-31 TASK 873
		22-11565	34-31 TASK 874
		22-11575	34-31 TASK 875
		22-11585	34-31 TASK 873
		22-11595	34-31 TASK 873
		22-11605	34-31 TASK 875
		22-11615	34-31 TASK 873
		22-11625	34-31 TASK 874
		22-11635	34-31 TASK 875
		22-11640	34-31 TASK 876
		22-11651	34-31 TASK 841
		22-11652	34-31 TASK 841
		22-11653	34-31 TASK 841
		22-11654	34-31 TASK 841
		22-11860	34-33 TASK 817
		22-11870	34-33 TASK 811
		22-11880	34-33 TASK 818
		22-11890	34-33 TASK 818
		22-11900	34-33 TASK 817
		22-11910	34-33 TASK 811
		22-11920	34-33 TASK 819
		22-11930	34-33 TASK 820
		22-11940	34-33 TASK 821
		22-13251	22-13 TASK 802
		22-13252	22-13 TASK 803
		22-13261	22-13 TASK 804
		22-13263	22-13 TASK 803
		22-13272	22-13 TASK 804
		22-13273	22-13 TASK 802
		22-13281	22-13 TASK 805

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.56
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
271 021 00	BANK ANGLE PROTECT (EICAS STATUS)	(continued)	
		22-13282	22-13 TASK 806
		22-13283	22-13 TASK 807
		22-13300	22-13 TASK 809
		22-13311	22-13 TASK 810
		22-13312	22-13 TASK 811
		22-13313	22-13 TASK 812
		22-13321	22-13 TASK 813
		22-13331	22-13 TASK 814
		22-13332	22-13 TASK 840
		22-13333	22-13 TASK 841
		22-13341	22-13 TASK 809
		22-13342	22-13 TASK 809
		22-13343	22-13 TASK 809
		22-13391	22-13 TASK 815
		22-13392	22-13 TASK 815
		22-13393	22-13 TASK 815
		22-13401	22-13 TASK 816
		22-13402	22-13 TASK 817
		22-13403	22-13 TASK 818
		22-13404	22-13 TASK 819
		22-13461	22-13 TASK 802
		22-13462	22-13 TASK 803
		22-13471	22-13 TASK 804
		22-13473	22-13 TASK 803
		22-13482	22-13 TASK 804
		22-13483	22-13 TASK 802
		22-17201	22-17 TASK 801
		22-17202	22-17 TASK 801
		22-17203	22-17 TASK 801
		22-18801	22-13 TASK 815
		22-18802	22-13 TASK 815
		22-18803	22-13 TASK 815
		22-18804	22-18 TASK 801
		22-18811	22-18 TASK 810
		22-18833	22-18 TASK 812

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.57
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
271 021 00	BANK ANGLE PROTECT (EICAS STATUS)	(continued)	
		22-18894	22-18 TASK 804
		22-18895	22-18 TASK 805
		22-19101	22-18 TASK 803
		22-19303	22-18 TASK 807
		23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		24-11784	24-51 TASK 836
		24-11787	24-32 TASK 817
		24-12056	24-32 TASK 820
		24-12126	24-51 TASK 841
		24-13816	24-32 TASK 831
		24-13817	24-33 TASK 818
		27-12500	27-11 TASK 851
		27-12501	27-11 TASK 897
		27-12502	27-11 TASK 838
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13009	27-02 TASK 877
		27-13010	27-02 TASK 878
		27-13025	27-02 TASK 819
		27-13026	27-02 TASK 832
		27-13047	27-02 TASK 862
		27-13048	27-02 TASK 863
		27-15010	27-02 TASK 849
		27-15011	27-02 TASK 850
		27-15101	27-02 TASK 947
		27-16023	27-11 TASK 841
		27-16024	27-11 TASK 918
		27-18010	27-02 TASK 962
		27-19101	27-02 TASK 974
		27-19116	27-02 TASK 977
		27-19201	27-02 TASK 979
		27-19301	27-02 TASK 983
		27-19322	27-02 TASK 986

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.58
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
271 021 00	BANK ANGLE PROTECT (EICAS STATUS)	(continued) 27-19730 27-19790 34-42011 34-42012 34-42013 34-42021 34-42022 34-42023 34-42031 34-42032 34-42033	27-02 TASK 960 27-02 TASK 964 34-33 TASK 801 34-33 TASK 801 34-33 TASK 801 34-33 TASK 802 34-33 TASK 812 34-33 TASK 813 34-33 TASK 814 34-33 TASK 815 34-33 TASK 816
271 611 31	Aileron control wheel: does not move freely - captain's.		27-11 TASK 852
271 611 32	Aileron control wheel: does not move freely - first officer's.		27-11 TASK 852
271 612 31	Aileron control wheel: moves beyond first stop - captain's.		27-11 TASK 928
271 612 32	Aileron control wheel: moves beyond first stop - first officer's.		27-11 TASK 928
271 631 00	Aileron trim: does not operate - left wing down direction.		27-11 TASK 853
271 632 00	Aileron trim: does not operate - right wing down direction.		27-11 TASK 854
271 633 00	Aileron trim: does not operate - either direction.		27-11 TASK 855
271 634 00	Aileron trim: necessary to maintain straight and level flight.		27-11 TASK 921
271 811 00	Aileron control wheel damper: Shows red or no color.		27-11 TASK 920
272 611 31	Rudder pedals: do not move freely - captain's.		27-21 TASK 834
272 611 32	Rudder pedals: do not move freely - first officer's.		27-21 TASK 834
272 613 31	Rudder pedal adjustment crank: does not move freely - captain's.		27-21 TASK 835
272 613 32	Rudder pedal adjustment crank: does not move freely - first officer's.		27-21 TASK 835
272 615 31	Rudder pedal adjustment crank: turns but rudder pedals do not move - captain's.		27-21 TASK 836

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.59
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
272 615 32	Rudder pedal adjustment crank: turns but rudder pedals do not move - first officer's.		27-21 TASK 836
272 631 00	Rudder trim: does not operate - left direction.		27-21 TASK 869
272 632 00	Rudder trim: does not operate - right direction.		27-21 TASK 869
272 633 00	Rudder trim: does not operate - either direction.		27-21 TASK 869
272 634 00	Rudder trim: necessary to maintain straight and level flight.		27-21 TASK 873
272 635 00	Rudder trim: indicator light problem.		27-21 TASK 837
272 636 00	Rudder trim: pointer problem.		27-21 TASK 838
272 811 00	Rudder pedal damper: Shows red or no color.		27-21 TASK 872
272 815 00	Noise (grinding or growling vibration) in aft cabin area when rudder moved with airplane on the ground.		27-21 TASK 879
272 816 00	Noise (bump or shake) in aft cabin area when rudder moved with airplane on ground.		27-21 TASK 880
273 021 00	CONTROL COLUMN XDCR (EICAS STATUS)	23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		27-12100	27-31 TASK 807
		27-12101	27-31 TASK 816
		27-12102	27-31 TASK 817
		27-12103	27-31 TASK 808
		27-12104	27-31 TASK 818
		27-12105	27-31 TASK 819
		27-12107	27-31 TASK 858
		27-12108	27-31 TASK 859
		27-12109	27-31 TASK 860
		27-12110	27-31 TASK 861
		27-12111	27-31 TASK 862
		27-12112	27-31 TASK 863
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-13008	27-02 TASK 807
		27-13009	27-02 TASK 877

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.60
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
273 021 00	CONTROL COLUMN XDCR (EICAS STATUS)	(continued)	
		27-13010	27-02 TASK 878
		27-13011	27-02 TASK 879
		27-13012	27-02 TASK 821
		27-13014	27-02 TASK 823
		27-13015	27-02 TASK 824
		27-13017	27-02 TASK 825
		27-13018	27-02 TASK 826
		27-13019	27-02 TASK 827
		27-13046	27-02 TASK 805
		27-13047	27-02 TASK 862
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-15009	27-02 TASK 802
		27-15010	27-02 TASK 849
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-19101	27-02 TASK 974
		27-19201	27-02 TASK 979
		27-19301	27-02 TASK 983
273 611 31	Control column: does not move freely - captain's.		27-31 TASK 866
273 611 32	Control column: does not move freely - first officer's.		27-31 TASK 866
273 612 00	Control column: Tension is too light.		27-31 TASK 867
273 811 00	Control column damper: Shows red or no color.		27-31 TASK 898
273 812 00	Noise (bump or shake) in aft cabin area when elevator moved with airplane on ground.		27-31 TASK 904
274 001 00	STABILIZER (EICAS WARNING)	23-41110	23-93 TASK 801
		23-41120	23-93 TASK 803
		23-41130	23-93 TASK 801
		23-41140	23-93 TASK 803
		23-41710	23-93 TASK 801

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.61
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
274 001 00	STABILIZER (EICAS WARNING)	(continued)	
		23-41720	23-93 TASK 803
		23-42110	23-93 TASK 802
		23-42120	23-93 TASK 804
		23-42130	23-93 TASK 802
		23-42140	23-93 TASK 804
		23-42710	23-93 TASK 802
		23-42720	23-93 TASK 804
		23-43110	29-11 TASK 880
		23-43120	29-11 TASK 881
		23-43130	29-11 TASK 882
		23-43140	29-11 TASK 883
		23-43710	29-11 TASK 885
		23-43720	29-11 TASK 886
		23-81001	23-91 TASK 801
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		24-11782	24-51 TASK 838
		24-11786	24-51 TASK 833
		24-11787	24-32 TASK 817
		24-12056	24-32 TASK 820
		24-12127	24-51 TASK 842
		24-12128	24-51 TASK 843
		24-13801	24-61 TASK 805
		24-13815	24-61 TASK 806
		24-13816	24-32 TASK 831
		27-10000	27-41 TASK 826
		27-10001	27-41 TASK 801
		27-10002	27-41 TASK 827
		27-10003	27-41 TASK 802
		27-10004	27-41 TASK 828
		27-10005	27-41 TASK 803
		27-10006	27-41 TASK 845
		27-10007	27-41 TASK 829
		27-10008	27-41 TASK 804

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.62
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
274 001 00	STABILIZER (EICAS WARNING)	(continued)	
		27-10017	27-41 TASK 806
		27-10018	27-41 TASK 833
		27-10019	27-41 TASK 834
		27-10020	27-41 TASK 819
		27-10021	27-41 TASK 835
		27-10022	27-41 TASK 814
		27-10023	27-41 TASK 836
		27-10024	27-41 TASK 815
		27-10025	27-41 TASK 846
		27-10026	27-41 TASK 847
		27-11000	27-41 TASK 807
		27-11001	27-41 TASK 810
		27-11002	27-41 TASK 811
		27-11003	27-41 TASK 820
		27-11004	27-41 TASK 837
		27-11005	27-41 TASK 838
		27-11006	27-41 TASK 808
		27-12404	27-41 TASK 816
		27-12405	27-41 TASK 842
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-13008	27-02 TASK 807
		27-13009	27-02 TASK 877
		27-13010	27-02 TASK 878
		27-13011	27-02 TASK 879
		27-13020	27-02 TASK 818
		27-13022	27-02 TASK 829
		27-13023	27-02 TASK 830
		27-13046	27-02 TASK 805
		27-13047	27-02 TASK 862
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-14024	27-02 TASK 806

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.63
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
274 001 00	STABILIZER (EICAS WARNING)	(continued)	
		27-15009	27-02 TASK 802
		27-15010	27-02 TASK 849
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15013	27-41 TASK 843
		27-15014	27-41 TASK 817
		27-15015	27-41 TASK 844
		27-15016	27-41 TASK 818
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-17023	27-02 TASK 891
		27-17024	27-02 TASK 892
		29-10130	29-11 TASK 845
		29-10140	29-11 TASK 846
		29-10150	29-11 TASK 894
		29-10180	29-11 TASK 803
		29-10190	29-11 TASK 853
		29-10200	29-21 TASK 801
		29-10210	29-21 TASK 804
		29-10220	29-11 TASK 929
		29-10230	29-11 TASK 930
		29-10240	29-21 TASK 802
		29-10250	29-21 TASK 805
		29-10330	29-11 TASK 827
		29-10420	29-11 TASK 814
		29-10430	29-11 TASK 815
		29-10440	29-11 TASK 816
		29-10470	29-11 TASK 858
		29-10480	29-11 TASK 859
		29-10490	29-11 TASK 860
		29-10510	29-11 TASK 819
		29-10530	29-11 TASK 862
		29-10550	29-11 TASK 896
		29-10570	29-11 TASK 898

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.64
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
274 001 00	STABILIZER (EICAS WARNING)	(continued)	
		29-10580	29-11 TASK 863
		29-10690	29-11 TASK 829
		29-10710	29-11 TASK 900
		29-10740	29-11 TASK 867
		29-10750	29-11 TASK 868
		29-10760	29-11 TASK 830
		29-10950	29-11 TASK 836
		29-10980	29-11 TASK 908
		29-11020	29-11 TASK 840
		29-11030	29-11 TASK 879
		29-11040	29-11 TASK 841
		29-11070	29-11 TASK 928
		29-11080	29-11 TASK 928
		29-11090	29-11 TASK 928
		29-11100	29-11 TASK 838
		29-11110	29-11 TASK 877
		29-17005	29-11 TASK 948
		29-17006	29-11 TASK 949
		29-17008	29-11 TASK 951
		29-17009	29-11 TASK 952
		29-17010	29-11 TASK 953
		29-17011	29-11 TASK 954
		29-17021	29-11 TASK 957
		29-17022	29-11 TASK 958
		29-17023	29-11 TASK 959
		29-18893	29-11 TASK 913
		29-18894	29-11 TASK 914
		31-14011	31-09 TASK 812
		31-14012	31-09 TASK 813
		31-14013	31-09 TASK 814
		31-14014	31-09 TASK 815
		31-14015	31-09 TASK 816
		31-14016	31-09 TASK 817
		31-14017	31-09 TASK 818
		31-14018	31-09 TASK 818

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.65
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
274 001 00	STABILIZER (EICAS WARNING)	(continued)	
		31-17437	31-09 TASK 835
		31-17438	31-09 TASK 836
		31-17639	31-10 TASK 814
		31-17640	31-10 TASK 815
		31-17905	31-07 TASK 801
		31-17906	31-07 TASK 802
		31-17907	31-07 TASK 803
		31-17908	31-07 TASK 804
		31-18801	31-08 TASK 810
		31-18802	31-08 TASK 811
		31-18803	31-08 TASK 812
		31-18804	31-08 TASK 813
		31-18841	31-08 TASK 814
		31-18842	31-08 TASK 814
		31-18863	31-08 TASK 816
		31-18864	31-08 TASK 817
		32-21000	32-09 TASK 807
		32-21100	32-09 TASK 802
		32-21300	32-09 TASK 803
		32-22000	32-09 TASK 809
		32-22100	32-09 TASK 809
		32-28801	32-09 TASK 821
274 011 00	STABILIZER CUTOUT (EICAS ADVISORY)	27-10007	27-41 TASK 829
		27-10008	27-41 TASK 804
274 021 42	STABILIZER R (EICAS ADVISORY)	27-10005	27-41 TASK 803
		27-10008	27-41 TASK 804
		27-12405	27-41 TASK 842
		27-14024	27-02 TASK 806
274 021 43	STABILIZER C (EICAS ADVISORY)	27-10004	27-41 TASK 828
		27-10007	27-41 TASK 829
		27-12404	27-41 TASK 816
		27-14024	27-02 TASK 806
274 031 00	STAB POSITION XDCR (EICAS STATUS)	23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.66
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
274 031 00	STAB POSITION XDCR (EICAS STATUS)	(continued)	
		27-11000	27-41 TASK 807
		27-11001	27-41 TASK 810
		27-11002	27-41 TASK 811
		27-11003	27-41 TASK 820
		27-11004	27-41 TASK 837
		27-11005	27-41 TASK 838
		27-11006	27-41 TASK 808
		27-13000	27-02 TASK 880
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-13008	27-02 TASK 807
		27-13010	27-02 TASK 878
		27-13011	27-02 TASK 879
		27-13020	27-02 TASK 818
		27-13022	27-02 TASK 829
		27-13023	27-02 TASK 830
		27-13046	27-02 TASK 805
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-15009	27-02 TASK 802
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-19101	27-02 TASK 974
		27-19201	27-02 TASK 979
		27-19301	27-02 TASK 983
274 032 00	STAB RATE VALVE (EICAS STATUS)	27-10015	27-41 TASK 832
		27-10016	27-41 TASK 813
		27-15013	27-41 TASK 843
		27-15014	27-41 TASK 817
274 041 00	STAB AUTO SHUTDOWN (EICAS STATUS)	23-41720	23-93 TASK 803
		23-42720	23-93 TASK 804
		23-43720	29-11 TASK 886

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.67
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
274 041 00	STAB AUTO SHUTDOWN (EICAS STATUS)	(continued)	
		27-10004	27-41 TASK 828
		27-10005	27-41 TASK 803
		27-10006	27-41 TASK 845
		27-10007	27-41 TASK 829
		27-10008	27-41 TASK 804
		27-10009	27-41 TASK 830
		27-10010	27-41 TASK 805
		27-10013	27-41 TASK 831
		27-10014	27-41 TASK 812
		27-10017	27-41 TASK 806
		27-10018	27-41 TASK 833
		27-10019	27-41 TASK 834
		27-10020	27-41 TASK 819
		27-10021	27-41 TASK 835
		27-10022	27-41 TASK 814
		27-10023	27-41 TASK 836
		27-10024	27-41 TASK 815
		27-10025	27-41 TASK 846
		27-10026	27-41 TASK 847
		27-12400	27-41 TASK 809
		27-12401	27-41 TASK 839
		27-12402	27-41 TASK 840
		27-12403	27-41 TASK 841
		27-12404	27-41 TASK 816
		27-12405	27-41 TASK 842
		27-14024	27-02 TASK 806
		27-15013	27-41 TASK 843
		27-15014	27-41 TASK 817
		27-15015	27-41 TASK 844
		27-15016	27-41 TASK 818
		29-10150	29-11 TASK 894
		29-10330	29-11 TASK 827
		29-10740	29-11 TASK 867
274 052 00	ALTN PITCH TRIM LEV (EICAS STATUS)	23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.68
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
274 052 00	ALTN PITCH TRIM LEV (EICAS STATUS)	(continued)	
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81005	23-91 TASK 805
		23-81006	23-91 TASK 806
		23-81007	23-91 TASK 807
		24-11787	24-32 TASK 817
		24-12051	24-32 TASK 819
		24-12056	24-32 TASK 820
		24-13801	24-61 TASK 805
		24-13815	24-61 TASK 806
		27-18000	27-41 TASK 821
		31-50007	31-44 TASK 821
		31-50008	31-44 TASK 822
		31-50017	31-44 TASK 823
		31-50018	31-44 TASK 824
		31-50027	31-44 TASK 825
		31-50028	31-44 TASK 826
		31-50201	31-43 TASK 852
		31-50202	31-43 TASK 853
		31-50418	31-44 TASK 885
		31-50427	31-44 TASK 886
		31-50428	31-44 TASK 887
		31-50437	31-44 TASK 888
		31-50438	31-44 TASK 889
		31-50447	31-44 TASK 890
		31-50448	31-44 TASK 891
		31-52013	31-43 TASK 866
		31-52014	31-43 TASK 867
		31-52101	31-41 TASK 817
		31-52112	31-41 TASK 820
		31-52121	31-41 TASK 821
		31-52122	31-41 TASK 822
		31-52601	31-41 TASK 832
		31-52602	31-41 TASK 833
		31-54013	31-43 TASK 868

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.69
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
274 052 00	ALTN PITCH TRIM LEV (EICAS STATUS)	(continued)	
		31-54014	31-43 TASK 869
		31-54101	31-41 TASK 834
		31-54102	31-41 TASK 835
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-54601	31-41 TASK 840
		31-54602	31-41 TASK 841
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56102	31-41 TASK 845
		31-56111	31-41 TASK 846
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-56601	31-41 TASK 842
		31-56602	31-41 TASK 843
		31-58014	31-43 TASK 873
		31-58102	31-41 TASK 853
		31-58122	31-41 TASK 857
		31-58602	31-41 TASK 993
		31-61032	31-41 TASK 891
		31-61041	31-43 TASK 835
		31-61042	31-43 TASK 836
		31-61051	31-43 TASK 837
		31-61052	31-43 TASK 838
		31-61061	31-43 TASK 839
		31-61062	31-43 TASK 840
		31-61112	31-43 TASK 856
		31-61113	31-43 TASK 856
		31-61114	31-43 TASK 856
		31-61115	31-43 TASK 856
		31-61116	31-43 TASK 856
		31-61117	31-43 TASK 856
		31-61118	31-43 TASK 856
274 611 00	ALTN PITCH TRIM lever: does not operate - NOSE UP direction.		27-41 TASK 822

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.70
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
274 612 00	ALTN PITCH TRIM lever: does not operate - NOSE DOWN direction.		27-41 TASK 822
274 613 00	ALTN PITCH TRIM lever: does not operate - either direction.		27-41 TASK 822
274 621 00	ALTN PITCH TRIM lever: does not move freely.		27-41 TASK 823
274 622 00	ALTN PITCH TRIM lever: levers do not align.		27-41 TASK 849
274 631 31	Stabilizer position indicator: light does not come on - captain's.		27-41 TASK 824
274 631 32	Stabilizer position indicator: light does not come on - first officer's.		27-41 TASK 848
274 632 31	Stabilizer position indicator: blank - captain's.		27-41 TASK 824
274 632 32	Stabilizer position indicator: blank - first officer's.		27-41 TASK 848
274 633 00	Stabilizer position indicator: captain's and first officer's indicators do not agree.		27-41 TASK 825
275 001 00	FLAPS DRIVE (EICAS CAUTION)	27-20161 27-20162 27-20201 27-20202 27-20441 27-20442 27-20461 27-20462 27-20471 27-20472 27-20481 27-20482 27-20491 27-20492 27-20501 27-20502 27-20511 27-20512 27-20521 27-20522 27-20531 27-20532	27-51 TASK 864 27-52 TASK 824 27-51 TASK 865 27-52 TASK 825 27-51 TASK 807 27-52 TASK 807 27-59 TASK 810 27-59 TASK 848 27-59 TASK 811 27-59 TASK 849 27-59 TASK 812 27-59 TASK 850 27-59 TASK 813 27-59 TASK 851 27-59 TASK 821 27-59 TASK 852 27-59 TASK 822 27-59 TASK 853 27-59 TASK 823 27-59 TASK 854 27-59 TASK 824 27-59 TASK 855

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.71
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 001 00	FLAPS DRIVE (EICAS CAUTION)	(continued)	
		27-20541	27-59 TASK 825
		27-20542	27-59 TASK 856
		27-20551	27-59 TASK 826
		27-20552	27-59 TASK 857
		27-20561	27-59 TASK 827
		27-20562	27-59 TASK 858
		27-20571	27-59 TASK 828
		27-20572	27-59 TASK 859
		27-20581	27-59 TASK 814
		27-20582	27-59 TASK 860
		27-20591	27-59 TASK 829
		27-20592	27-59 TASK 861
		27-20601	27-59 TASK 815
		27-20602	27-59 TASK 862
		27-20611	27-59 TASK 830
		27-20612	27-59 TASK 863
		27-20621	27-59 TASK 831
		27-20622	27-59 TASK 864
		27-20631	27-59 TASK 832
		27-20632	27-59 TASK 865
		27-20641	27-59 TASK 816
		27-20642	27-59 TASK 866
		27-20751	27-51 TASK 817
		27-20752	27-52 TASK 818
		27-20791	27-51 TASK 819
		27-20792	27-52 TASK 820
		27-20831	27-51 TASK 821
		27-20832	27-52 TASK 822
		27-21191	27-51 TASK 824
		27-21192	27-52 TASK 827
		27-21201	27-51 TASK 825
		27-21202	27-52 TASK 828
		27-21211	27-51 TASK 826
		27-21212	27-52 TASK 829
		27-21221	27-51 TASK 836

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.72
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 001 00	FLAPS DRIVE (EICAS CAUTION)	(continued)	
		27-21222	27-52 TASK 830
		27-21291	27-51 TASK 868
		27-21292	27-51 TASK 868
275 011 00	FLAPS PRIMARY FAIL (EICAS CAUTION)	27-20360	27-51 TASK 860
		27-20371	27-51 TASK 801
		27-20372	27-52 TASK 801
		27-20381	27-51 TASK 862
		27-20382	27-52 TASK 802
		27-20390	27-51 TASK 802
		27-20391	27-51 TASK 802
		27-20392	27-51 TASK 802
		27-20401	27-51 TASK 803
		27-20402	27-52 TASK 803
		27-20411	27-51 TASK 804
		27-20412	27-52 TASK 804
		27-20421	27-51 TASK 805
		27-20422	27-52 TASK 805
		27-20431	27-51 TASK 806
		27-20432	27-52 TASK 806
		NONE	27-51 TASK 806
275 012 00	FLAPS SECONDARY FAIL (EICAS STATUS)	27-20171	27-51 TASK 864
		27-20172	27-52 TASK 824
		27-20211	27-51 TASK 865
		27-20212	27-52 TASK 825
		27-20451	27-51 TASK 808
		27-20452	27-52 TASK 808
		27-20761	27-51 TASK 818
		27-20762	27-52 TASK 819
		27-20801	27-51 TASK 820
		27-20802	27-52 TASK 821
		27-20841	27-51 TASK 822
		27-20842	27-52 TASK 823
275 021 00	FLAP/SLAT CONTROL (EICAS CAUTION)	23-81004	23-91 TASK 804
		23-81005	23-91 TASK 805
		23-81006	23-91 TASK 806

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.73
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 021 00	FLAP/SLAT CONTROL (EICAS CAUTION)	(continued)	
		24-12056	24-32 TASK 820
		24-12124	24-51 TASK 840
		24-12127	24-51 TASK 842
		24-13816	24-32 TASK 831
		24-13817	24-33 TASK 818
		24-13818	24-53 TASK 807
		27-20251	27-51 TASK 863
		27-20252	27-52 TASK 809
		27-20261	27-51 TASK 809
		27-20262	27-52 TASK 810
		27-20271	27-51 TASK 810
		27-20272	27-52 TASK 811
		27-20691	27-51 TASK 811
		27-20692	27-52 TASK 812
		27-20701	27-51 TASK 812
		27-20702	27-52 TASK 813
		27-20711	27-51 TASK 813
		27-20712	27-52 TASK 814
		27-20891	27-51 TASK 823
		27-20892	27-52 TASK 826
		27-21161	27-81 TASK 814
		27-21162	27-82 TASK 815
		27-21171	27-81 TASK 815
		27-21172	27-82 TASK 816
		27-21181	27-81 TASK 816
		27-21182	27-82 TASK 817
		27-21241	27-51 TASK 838
		27-21242	27-52 TASK 832
		27-25011	27-51 TASK 839
		27-25012	27-52 TASK 838
		27-25021	27-51 TASK 840
		27-25022	27-51 TASK 840
		27-25031	27-81 TASK 824
		27-25032	27-82 TASK 827
		27-25041	27-81 TASK 823

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.74
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 021 00	FLAP/SLAT CONTROL (EICAS CAUTION)	(continued)	
		27-25042	27-82 TASK 826
		27-25051	27-81 TASK 825
		27-25052	27-82 TASK 828
		27-25061	27-81 TASK 823
		27-25062	27-82 TASK 826
		27-25071	27-81 TASK 826
		27-25072	27-82 TASK 829
		27-25081	27-81 TASK 827
		27-25082	27-82 TASK 830
		27-25091	27-81 TASK 828
		27-25092	27-82 TASK 831
		27-25101	27-81 TASK 827
		27-25102	27-82 TASK 830
		27-25111	27-81 TASK 829
		27-25112	27-82 TASK 832
		27-25121	27-81 TASK 830
		27-25122	27-82 TASK 833
		27-25131	27-81 TASK 831
		27-25132	27-82 TASK 834
		27-25141	27-81 TASK 832
		27-25142	27-82 TASK 835
		27-25151	27-81 TASK 833
		27-25152	27-82 TASK 836
		27-25161	27-81 TASK 834
		27-25162	27-82 TASK 837
		27-25171	27-81 TASK 835
		27-25172	27-82 TASK 838
		27-25181	27-51 TASK 827
		27-25182	27-52 TASK 839
		27-25191	27-51 TASK 828
		27-25192	27-52 TASK 840
		27-25201	27-51 TASK 829
		27-25202	27-52 TASK 841
		27-25211	27-51 TASK 828
		27-25212	27-52 TASK 840

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.75
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 021 00	FLAP/SLAT CONTROL (EICAS CAUTION)	(continued)	
		27-25221	27-51 TASK 830
		27-25222	27-52 TASK 842
		27-25231	27-51 TASK 831
		27-25232	27-52 TASK 843
		27-25241	27-51 TASK 832
		27-25242	27-52 TASK 844
		27-25251	27-51 TASK 831
		27-25252	27-52 TASK 843
		27-25261	27-51 TASK 833
		27-25262	27-52 TASK 845
		27-25271	27-51 TASK 834
		27-25272	27-52 TASK 846
		27-25281	27-51 TASK 843
		27-25282	27-52 TASK 848
		27-25291	27-51 TASK 844
		27-25292	27-52 TASK 849
		27-25301	27-51 TASK 845
		27-25302	27-52 TASK 850
		27-25311	27-51 TASK 846
		27-25312	27-52 TASK 851
		27-25321	27-51 TASK 847
		27-25322	27-52 TASK 852
		27-25331	27-89 TASK 809
		27-25332	27-89 TASK 825
		27-25341	27-89 TASK 812
		27-25342	27-89 TASK 826
		27-25351	27-89 TASK 813
		27-25352	27-89 TASK 827
		27-25361	27-89 TASK 814
		27-25362	27-89 TASK 828
		27-25371	27-59 TASK 817
		27-25372	27-59 TASK 867
		27-25381	27-59 TASK 833
		27-25382	27-59 TASK 868
		27-25391	27-59 TASK 834

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.76
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 021 00	FLAP/SLAT CONTROL (EICAS CAUTION)	(continued)	
		27-25392	27-59 TASK 869
		27-25401	27-59 TASK 835
		27-25402	27-59 TASK 870
		27-25411	27-51 TASK 835
		27-25412	27-52 TASK 847
		27-25421	27-81 TASK 836
		27-25422	27-82 TASK 839
		27-25431	27-81 TASK 837
		27-25432	27-82 TASK 840
		27-25441	27-81 TASK 838
		27-25442	27-82 TASK 841
		27-25451	27-81 TASK 839
		27-25452	27-82 TASK 842
		27-25461	27-81 TASK 840
		27-25462	27-82 TASK 843
		27-25471	27-81 TASK 841
		27-25472	27-82 TASK 844
		27-25481	27-81 TASK 842
		27-25482	27-82 TASK 845
		27-25491	27-51 TASK 848
		27-25492	27-52 TASK 853
		27-25501	27-51 TASK 849
		27-25502	27-52 TASK 854
		27-25511	27-51 TASK 850
		27-25512	27-52 TASK 855
		27-25521	27-51 TASK 851
		27-25522	27-52 TASK 856
		27-25531	27-51 TASK 852
		27-25532	27-52 TASK 857
		27-25541	27-51 TASK 853
		27-25542	27-52 TASK 858
		27-25551	27-51 TASK 854
		27-25552	27-52 TASK 859
		27-25561	27-81 TASK 843
		27-25562	27-82 TASK 846

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.77
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 021 00	FLAP/SLAT CONTROL (EICAS CAUTION)	(continued)	
		27-25581	27-51 TASK 855
		27-25582	27-52 TASK 860
		27-25591	27-51 TASK 856
		27-25592	27-52 TASK 861
		27-25601	27-51 TASK 857
		27-25602	27-52 TASK 862
		27-25611	27-51 TASK 858
		27-25612	27-52 TASK 863
		27-25621	27-51 TASK 859
		27-25622	27-52 TASK 864
		27-25630	27-81 TASK 850
		27-25640	27-51 TASK 870
		27-28801	27-51 TASK 841
		27-28802	27-52 TASK 835
		27-28841	27-51 TASK 842
		27-28851	27-51 TASK 869
		27-28852	27-52 TASK 837
		27-28862	27-52 TASK 836
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-58013	31-43 TASK 872
		31-58014	31-43 TASK 873
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69433	31-42 TASK 838
		31-69434	31-42 TASK 838
		31-69501	31-42 TASK 852

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.78
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 021 00	FLAP/SLAT CONTROL (EICAS CAUTION)	(continued)	
		31-69502	31-42 TASK 852
		31-69533	31-42 TASK 854
		31-69534	31-42 TASK 854
		31-69535	31-42 TASK 854
		31-69536	31-42 TASK 854
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		31-69635	31-42 TASK 868
		31-69636	31-42 TASK 868
275 022 01	FLAP/SLAT CONTROL 1 (EICAS STATUS)	23-81004	23-91 TASK 804
		23-81005	23-91 TASK 805
		24-13816	24-32 TASK 831
		24-13817	24-33 TASK 818
		24-13818	24-53 TASK 807
		27-20251	27-51 TASK 863
		27-20261	27-51 TASK 809
		27-20271	27-51 TASK 810
		27-20360	27-51 TASK 860
		27-20381	27-51 TASK 862
		27-20390	27-51 TASK 802
		27-20391	27-51 TASK 802
		27-20401	27-51 TASK 803
		27-20411	27-51 TASK 804
		27-20421	27-51 TASK 805
		27-20691	27-51 TASK 811
		27-20701	27-51 TASK 812
		27-20711	27-51 TASK 813
		27-20721	27-51 TASK 814
		27-20891	27-51 TASK 823
		27-20950	27-81 TASK 844
		27-20971	27-81 TASK 845
		27-20980	27-81 TASK 805
		27-20981	27-81 TASK 805
		27-20991	27-81 TASK 806
		27-21001	27-81 TASK 807

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.79
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 022 01	FLAP/SLAT CONTROL 1 (EICAS STATUS)	(continued)	
		27-21011	27-81 TASK 808
		27-21161	27-81 TASK 814
		27-21171	27-81 TASK 815
		27-21181	27-81 TASK 816
		27-21231	27-51 TASK 837
		27-21241	27-51 TASK 838
		27-21271	27-51 TASK 867
		27-21301	27-51 TASK 874
		27-28801	27-51 TASK 841
		27-28841	27-51 TASK 842
		27-28851	27-51 TASK 869
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-58013	31-43 TASK 872
		31-58014	31-43 TASK 873
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69433	31-42 TASK 838
		31-69434	31-42 TASK 838
		31-69501	31-42 TASK 852
		31-69502	31-42 TASK 852
		31-69533	31-42 TASK 854
		31-69534	31-42 TASK 854
275 022 02	FLAP/SLAT CONTROL 2 (EICAS STATUS)	23-81005	23-91 TASK 805
		23-81006	23-91 TASK 806
		24-12056	24-32 TASK 820
		24-12124	24-51 TASK 840
		24-12127	24-51 TASK 842
		27-20252	27-52 TASK 809
		27-20262	27-52 TASK 810
		27-20272	27-52 TASK 811

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.80
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 022 02	FLAP/SLAT CONTROL 2 (EICAS STATUS)	(continued)	
		27-20360	27-51 TASK 860
		27-20382	27-52 TASK 802
		27-20390	27-51 TASK 802
		27-20392	27-51 TASK 802
		27-20402	27-52 TASK 803
		27-20412	27-52 TASK 804
		27-20422	27-52 TASK 805
		27-20692	27-52 TASK 812
		27-20702	27-52 TASK 813
		27-20712	27-52 TASK 814
		27-20722	27-52 TASK 815
		27-20892	27-52 TASK 826
		27-20950	27-81 TASK 844
		27-20972	27-82 TASK 805
		27-20980	27-81 TASK 805
		27-20982	27-81 TASK 805
		27-20992	27-82 TASK 806
		27-21002	27-82 TASK 807
		27-21012	27-82 TASK 808
		27-21162	27-82 TASK 815
		27-21172	27-82 TASK 816
		27-21182	27-82 TASK 817
		27-21232	27-52 TASK 831
		27-21242	27-52 TASK 832
		27-21272	27-52 TASK 834
		27-21302	27-52 TASK 865
		27-28802	27-52 TASK 835
		27-28852	27-52 TASK 837
		27-28862	27-52 TASK 836
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.81
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 022 02	FLAP/SLAT CONTROL 2 (EICAS STATUS)	(continued)	
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-69501	31-42 TASK 852
		31-69502	31-42 TASK 852
		31-69535	31-42 TASK 854
		31-69536	31-42 TASK 854
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		31-69635	31-42 TASK 868
		31-69636	31-42 TASK 868
275 031 00	FLAP/SLAT SKEW SNSRS (EICAS STATUS)	27-20281	27-59 TASK 801
		27-20282	27-59 TASK 836
		27-20291	27-59 TASK 802
		27-20292	27-59 TASK 837
		27-20301	27-59 TASK 803
		27-20302	27-59 TASK 838
		27-20311	27-59 TASK 804
		27-20312	27-59 TASK 839
		27-20321	27-59 TASK 805
		27-20322	27-59 TASK 840
		27-20331	27-59 TASK 806
		27-20332	27-59 TASK 841
		27-20341	27-59 TASK 807
		27-20342	27-59 TASK 842
		27-20351	27-59 TASK 808
		27-20352	27-59 TASK 843
		27-20461	27-59 TASK 810
		27-20462	27-59 TASK 848
		27-20471	27-59 TASK 811
		27-20472	27-59 TASK 849
		27-20481	27-59 TASK 812
		27-20482	27-59 TASK 850
		27-20491	27-59 TASK 813
		27-20492	27-59 TASK 851
		27-20501	27-59 TASK 821

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.82
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 031 00	FLAP/SLAT SKEW SNSRS (EICAS STATUS)	(continued)	
		27-20502	27-59 TASK 852
		27-20511	27-59 TASK 822
		27-20512	27-59 TASK 853
		27-20521	27-59 TASK 823
		27-20522	27-59 TASK 854
		27-20531	27-59 TASK 824
		27-20532	27-59 TASK 855
		27-20541	27-59 TASK 825
		27-20542	27-59 TASK 856
		27-20551	27-59 TASK 826
		27-20552	27-59 TASK 857
		27-20561	27-59 TASK 827
		27-20562	27-59 TASK 858
		27-20571	27-59 TASK 828
		27-20572	27-59 TASK 859
		27-20581	27-59 TASK 814
		27-20582	27-59 TASK 860
		27-20591	27-59 TASK 829
		27-20592	27-59 TASK 861
		27-20601	27-59 TASK 815
		27-20602	27-59 TASK 862
		27-20611	27-59 TASK 830
		27-20612	27-59 TASK 863
		27-20621	27-59 TASK 831
		27-20622	27-59 TASK 864
		27-20631	27-59 TASK 832
		27-20632	27-59 TASK 865
		27-20641	27-59 TASK 816
		27-20642	27-59 TASK 866
		27-20651	27-59 TASK 809
		27-20652	27-59 TASK 844
		27-20661	27-59 TASK 818
		27-20662	27-59 TASK 845
		27-20671	27-59 TASK 819
		27-20672	27-59 TASK 846

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.83
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
275 031 00	FLAP/SLAT SKEW SNSRS (EICAS STATUS)	(continued)	
		27-20681	27-59 TASK 820
		27-20682	27-59 TASK 847
		27-21061	27-89 TASK 810
		27-21062	27-89 TASK 817
		27-21071	27-89 TASK 802
		27-21072	27-89 TASK 816
		27-21081	27-89 TASK 811
		27-21082	27-89 TASK 818
		27-21091	27-89 TASK 801
		27-21092	27-89 TASK 815
		27-21101	27-89 TASK 803
		27-21102	27-89 TASK 819
		27-21111	27-89 TASK 805
		27-21112	27-89 TASK 821
		27-21121	27-89 TASK 806
		27-21122	27-89 TASK 822
		27-21131	27-89 TASK 804
		27-21132	27-89 TASK 820
		27-21141	27-89 TASK 807
		27-21142	27-89 TASK 823
		27-21151	27-89 TASK 808
		27-21152	27-89 TASK 824
275 611 00	ALTN FLAPS switch: does not move flaps - switch in EXT position.		27-51 TASK 871
275 613 00	ALTN FLAPS switch: does not move flaps - switch in either position.		27-51 TASK 872
275 621 00	ALTN FLAPS switch: does not move flaps - switch in RET position.		27-51 TASK 873
275 631 00	Trailing edge flaps: operation is slow.		27-51 TASK 875
275 632 00	Trailing edge flaps: FLAPS position indication on EICAS momentarily shows 20 units with flap lever at 15 units.		27-51 TASK 876
276 001 00	SPOILERS (EICAS ADVISORY)	23-41110	23-93 TASK 801
		23-41120	23-93 TASK 803
		23-41130	23-93 TASK 801
		23-41140	23-93 TASK 803

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.84
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 001 00	SPOILERS (EICAS ADVISORY)	(continued)	
		23-41340	23-93 TASK 803
		23-41360	23-93 TASK 801
		23-41710	23-93 TASK 801
		23-41720	23-93 TASK 803
		23-42110	23-93 TASK 802
		23-42120	23-93 TASK 804
		23-42130	23-93 TASK 802
		23-42140	23-93 TASK 804
		23-42340	23-93 TASK 804
		23-42360	23-93 TASK 802
		23-42710	23-93 TASK 802
		23-42720	23-93 TASK 804
		23-43110	29-11 TASK 880
		23-43120	29-11 TASK 881
		23-43130	29-11 TASK 882
		23-43140	29-11 TASK 883
		23-43340	29-11 TASK 842
		23-43360	29-11 TASK 884
		23-43710	29-11 TASK 885
		23-43720	29-11 TASK 886
		23-81001	23-91 TASK 801
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		24-11782	24-51 TASK 838
		24-11786	24-51 TASK 833
		24-11787	24-32 TASK 817
		24-12056	24-32 TASK 820
		24-12124	24-51 TASK 840
		24-12127	24-51 TASK 842
		24-12128	24-51 TASK 843
		24-13801	24-61 TASK 805
		24-13815	24-61 TASK 806
		24-13816	24-32 TASK 831
		27-10500	27-61 TASK 801

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.85
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 001 00	SPOILERS (EICAS ADVISORY)	(continued)	
		27-10501	27-61 TASK 802
		27-10502	27-61 TASK 803
		27-10503	27-61 TASK 841
		27-10504	27-61 TASK 804
		27-10505	27-61 TASK 805
		27-10506	27-61 TASK 806
		27-10507	27-61 TASK 807
		27-10508	27-61 TASK 808
		27-10509	27-61 TASK 809
		27-10510	27-61 TASK 810
		27-10511	27-61 TASK 811
		27-10512	27-61 TASK 812
		27-10513	27-61 TASK 813
		27-10514	27-61 TASK 828
		27-11500	27-61 TASK 814
		27-11501	27-61 TASK 819
		27-11502	27-61 TASK 820
		27-11503	27-61 TASK 821
		27-11504	27-61 TASK 822
		27-11505	27-61 TASK 823
		27-11506	27-61 TASK 824
		27-11507	27-61 TASK 825
		27-11508	27-61 TASK 826
		27-11509	27-61 TASK 827
		27-11510	27-61 TASK 815
		27-11511	27-61 TASK 832
		27-11512	27-61 TASK 833
		27-11513	27-61 TASK 834
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-13008	27-02 TASK 807
		27-13009	27-02 TASK 877
		27-13010	27-02 TASK 878

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.86
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 001 00	SPOILERS (EICAS ADVISORY)	(continued)	
		27-13011	27-02 TASK 879
		27-13028	27-02 TASK 834
		27-13029	27-02 TASK 820
		27-13030	27-02 TASK 835
		27-13031	27-02 TASK 836
		27-13046	27-02 TASK 805
		27-13047	27-02 TASK 862
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-15009	27-02 TASK 802
		27-15010	27-02 TASK 849
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15027	27-11 TASK 895
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-17019	27-02 TASK 815
		27-17020	27-02 TASK 889
		27-17021	27-02 TASK 890
		29-10130	29-11 TASK 845
		29-10140	29-11 TASK 846
		29-10150	29-11 TASK 894
		29-10180	29-11 TASK 803
		29-10190	29-11 TASK 853
		29-10200	29-21 TASK 801
		29-10210	29-21 TASK 804
		29-10220	29-11 TASK 929
		29-10230	29-11 TASK 930
		29-10240	29-21 TASK 802
		29-10250	29-21 TASK 805
		29-10330	29-11 TASK 827
		29-10340	29-11 TASK 813
		29-10420	29-11 TASK 814
		29-10430	29-11 TASK 815

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.87
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 001 00	SPOILERS (EICAS ADVISORY)	(continued)	
		29-10440	29-11 TASK 816
		29-10470	29-11 TASK 858
		29-10480	29-11 TASK 859
		29-10490	29-11 TASK 860
		29-10510	29-11 TASK 819
		29-10530	29-11 TASK 862
		29-10550	29-11 TASK 896
		29-10570	29-11 TASK 898
		29-10580	29-11 TASK 863
		29-10620	29-11 TASK 899
		29-10650	29-11 TASK 825
		29-10660	29-11 TASK 826
		29-10690	29-11 TASK 829
		29-10710	29-11 TASK 900
		29-10740	29-11 TASK 867
		29-10750	29-11 TASK 868
		29-10760	29-11 TASK 830
		29-10950	29-11 TASK 836
		29-10980	29-11 TASK 908
		29-11020	29-11 TASK 840
		29-11030	29-11 TASK 879
		29-11040	29-11 TASK 841
		29-11060	29-11 TASK 928
		29-11070	29-11 TASK 928
		29-11080	29-11 TASK 928
		29-11090	29-11 TASK 928
		29-11100	29-11 TASK 838
		29-11110	29-11 TASK 877
		29-17005	29-11 TASK 948
		29-17006	29-11 TASK 949
		29-17007	29-11 TASK 950
		29-17008	29-11 TASK 951
		29-17009	29-11 TASK 952
		29-17010	29-11 TASK 953
		29-17011	29-11 TASK 954

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.88
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 001 00	SPOILERS (EICAS ADVISORY)	(continued)	
		29-17020	29-11 TASK 956
		29-17021	29-11 TASK 957
		29-17022	29-11 TASK 958
		29-17023	29-11 TASK 959
		29-17024	29-11 TASK 955
		29-18893	29-11 TASK 913
		29-18894	29-11 TASK 914
		31-14011	31-09 TASK 812
		31-14012	31-09 TASK 813
		31-14013	31-09 TASK 814
		31-14014	31-09 TASK 815
		31-14015	31-09 TASK 816
		31-14016	31-09 TASK 817
		31-14017	31-09 TASK 818
		31-14018	31-09 TASK 818
		31-17437	31-09 TASK 835
		31-17438	31-09 TASK 836
		31-17639	31-10 TASK 814
		31-17640	31-10 TASK 815
		31-17905	31-07 TASK 801
		31-17906	31-07 TASK 802
		31-17907	31-07 TASK 803
		31-17908	31-07 TASK 804
		31-18801	31-08 TASK 810
		31-18802	31-08 TASK 811
		31-18803	31-08 TASK 812
		31-18804	31-08 TASK 813
		31-18841	31-08 TASK 814
		31-18842	31-08 TASK 814
		31-18863	31-08 TASK 816
		31-18864	31-08 TASK 817
		32-21000	32-09 TASK 807
		32-21100	32-09 TASK 802
		32-21300	32-09 TASK 803
		32-22000	32-09 TASK 809

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.89
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 001 00	SPOILERS (EICAS ADVISORY)	(continued)	
		32-22100	32-09 TASK 809
		32-28801	32-09 TASK 821
		NONE	27-02 TASK 991
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	21-16205	21-25 TASK 823
		23-41110	23-93 TASK 801
		23-41120	23-93 TASK 803
		23-41130	23-93 TASK 801
		23-41140	23-93 TASK 803
		23-41720	23-93 TASK 803
		23-42110	23-93 TASK 802
		23-42120	23-93 TASK 804
		23-42130	23-93 TASK 802
		23-42140	23-93 TASK 804
		23-42720	23-93 TASK 804
		23-43110	29-11 TASK 880
		23-43120	29-11 TASK 881
		23-43130	29-11 TASK 882
		23-43140	29-11 TASK 883
		23-43720	29-11 TASK 886
		23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81005	23-91 TASK 805
		23-81006	23-91 TASK 806
		23-81007	23-91 TASK 807
		24-11780	24-53 TASK 805
		24-11781	24-51 TASK 837
		24-11782	24-51 TASK 838
		24-11784	24-51 TASK 836
		24-11786	24-51 TASK 833
		24-11787	24-32 TASK 817
		24-11790	24-08 TASK 833
		24-11793	24-08 TASK 834
		24-11795	24-08 TASK 804

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.90
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		24-11796	24-08 TASK 804
		24-12051	24-32 TASK 819
		24-12056	24-32 TASK 820
		24-12057	24-08 TASK 836
		24-12122	24-08 TASK 835
		24-12124	24-51 TASK 840
		24-12125	24-51 TASK 841
		24-12126	24-51 TASK 841
		24-12127	24-51 TASK 842
		24-12128	24-51 TASK 843
		24-12800	24-08 TASK 805
		24-12801	24-08 TASK 805
		24-13801	24-61 TASK 805
		24-13815	24-61 TASK 806
		24-13816	24-32 TASK 831
		24-13817	24-33 TASK 818
		24-18801	24-09 TASK 806
		24-18802	24-09 TASK 807
		24-78841	24-08 TASK 860
		24-78842	24-08 TASK 862
		24-78861	24-08 TASK 861
		24-78862	24-08 TASK 863
		27-10000	27-41 TASK 826
		27-10001	27-41 TASK 801
		27-10002	27-41 TASK 827
		27-10003	27-41 TASK 802
		27-10004	27-41 TASK 828
		27-10005	27-41 TASK 803
		27-10006	27-41 TASK 845
		27-10007	27-41 TASK 829
		27-10008	27-41 TASK 804
		27-10017	27-41 TASK 806
		27-10018	27-41 TASK 833
		27-10019	27-41 TASK 834
		27-10020	27-41 TASK 819

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.91
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		27-10021	27-41 TASK 835
		27-10022	27-41 TASK 814
		27-10023	27-41 TASK 836
		27-10024	27-41 TASK 815
		27-10025	27-41 TASK 846
		27-10026	27-41 TASK 847
		27-10100	27-31 TASK 868
		27-10101	27-31 TASK 801
		27-10102	27-31 TASK 869
		27-10103	27-31 TASK 870
		27-10600	27-62 TASK 801
		27-10601	27-62 TASK 802
		27-10602	27-62 TASK 805
		27-11000	27-41 TASK 807
		27-11001	27-41 TASK 810
		27-11002	27-41 TASK 811
		27-11003	27-41 TASK 820
		27-11004	27-41 TASK 837
		27-11005	27-41 TASK 838
		27-11006	27-41 TASK 808
		27-11100	27-31 TASK 855
		27-11101	27-31 TASK 826
		27-11102	27-31 TASK 856
		27-11103	27-31 TASK 857
		27-11106	27-31 TASK 813
		27-11107	27-31 TASK 804
		27-11108	27-31 TASK 814
		27-11109	27-31 TASK 815
		27-11114	27-31 TASK 887
		27-11115	27-31 TASK 806
		27-11116	27-31 TASK 888
		27-11117	27-31 TASK 889
		27-12000	27-11 TASK 846
		27-12001	27-11 TASK 907
		27-12002	27-11 TASK 908

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.92
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		27-12003	27-11 TASK 834
		27-12004	27-11 TASK 890
		27-12005	27-11 TASK 891
		27-12006	27-11 TASK 843
		27-12007	27-11 TASK 909
		27-12008	27-11 TASK 910
		27-12009	27-11 TASK 911
		27-12010	27-11 TASK 849
		27-12011	27-11 TASK 850
		27-12012	27-11 TASK 884
		27-12013	27-11 TASK 843
		27-12100	27-31 TASK 807
		27-12101	27-31 TASK 816
		27-12102	27-31 TASK 817
		27-12103	27-31 TASK 808
		27-12104	27-31 TASK 818
		27-12105	27-31 TASK 819
		27-12106	27-31 TASK 809
		27-12107	27-31 TASK 858
		27-12108	27-31 TASK 859
		27-12109	27-31 TASK 860
		27-12110	27-31 TASK 861
		27-12111	27-31 TASK 862
		27-12112	27-31 TASK 863
		27-12113	27-31 TASK 809
		27-12200	27-21 TASK 813
		27-12201	27-21 TASK 858
		27-12202	27-21 TASK 859
		27-12203	27-21 TASK 860
		27-12204	27-21 TASK 814
		27-12205	27-21 TASK 814
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.93
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		27-13008	27-02 TASK 807
		27-13009	27-02 TASK 877
		27-13010	27-02 TASK 878
		27-13011	27-02 TASK 879
		27-13012	27-02 TASK 821
		27-13013	27-02 TASK 822
		27-13014	27-02 TASK 823
		27-13015	27-02 TASK 824
		27-13016	27-02 TASK 817
		27-13017	27-02 TASK 825
		27-13018	27-02 TASK 826
		27-13019	27-02 TASK 827
		27-13020	27-02 TASK 818
		27-13022	27-02 TASK 829
		27-13023	27-02 TASK 830
		27-13025	27-02 TASK 819
		27-13026	27-02 TASK 832
		27-13027	27-02 TASK 833
		27-13046	27-02 TASK 805
		27-13047	27-02 TASK 862
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-14018	27-02 TASK 813
		27-14019	27-02 TASK 941
		27-14020	27-02 TASK 942
		27-14024	27-02 TASK 806
		27-14025	27-02 TASK 943
		27-14026	27-02 TASK 944
		27-14027	27-02 TASK 945
		27-14030	27-02 TASK 905
		27-14031	27-02 TASK 906
		27-14032	27-02 TASK 907
		27-14033	27-02 TASK 908
		27-15009	27-02 TASK 802
		27-15010	27-02 TASK 849

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.94
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15013	27-41 TASK 843
		27-15014	27-41 TASK 817
		27-15015	27-41 TASK 844
		27-15016	27-41 TASK 818
		27-15032	27-62 TASK 803
		27-15033	27-62 TASK 804
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-17020	27-02 TASK 889
		27-17022	27-02 TASK 816
		27-17023	27-02 TASK 891
		27-17024	27-02 TASK 892
		27-18570	27-02 TASK 971
		27-18580	27-02 TASK 971
		27-18811	27-02 TASK 901
		27-18822	27-02 TASK 919
		27-18830	27-02 TASK 898
		27-18833	27-02 TASK 920
		27-18850	27-61 TASK 829
		27-18860	27-02 TASK 895
		27-18910	27-02 TASK 896
		27-19010	27-02 TASK 899
		27-19101	27-02 TASK 974
		27-19104	27-02 TASK 975
		27-19110	27-02 TASK 976
		27-19201	27-02 TASK 979
		27-19237	27-02 TASK 982
		27-19301	27-02 TASK 983
		27-19307	27-02 TASK 984
		27-19310	27-02 TASK 985
		27-19470	27-02 TASK 897
		27-19510	27-02 TASK 904

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.95
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		27-19550	27-02 TASK A19
		27-19630	27-02 TASK A20
		29-10130	29-11 TASK 845
		29-10150	29-11 TASK 894
		29-10180	29-11 TASK 803
		29-10190	29-11 TASK 853
		29-10220	29-11 TASK 929
		29-10230	29-11 TASK 930
		29-10330	29-11 TASK 827
		29-10420	29-11 TASK 814
		29-10430	29-11 TASK 815
		29-10440	29-11 TASK 816
		29-10470	29-11 TASK 858
		29-10480	29-11 TASK 859
		29-10490	29-11 TASK 860
		29-10510	29-11 TASK 819
		29-10530	29-11 TASK 862
		29-10550	29-11 TASK 896
		29-10570	29-11 TASK 898
		29-10580	29-11 TASK 863
		29-10740	29-11 TASK 867
		29-10760	29-11 TASK 830
		29-10810	29-11 TASK 835
		29-10820	29-11 TASK 805
		29-10870	29-11 TASK 874
		29-10880	29-11 TASK 854
		29-10950	29-11 TASK 836
		29-10980	29-11 TASK 908
		29-11020	29-11 TASK 840
		29-11030	29-11 TASK 879
		29-11040	29-11 TASK 841
		29-11060	29-11 TASK 928
		29-11070	29-11 TASK 928
		29-11080	29-11 TASK 928
		29-11090	29-11 TASK 928

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.96
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		29-11100	29-11 TASK 838
		29-11110	29-11 TASK 877
		29-17006	29-11 TASK 949
		29-17008	29-11 TASK 951
		29-17009	29-11 TASK 952
		29-17010	29-11 TASK 953
		29-17022	29-11 TASK 958
		29-17023	29-11 TASK 959
		29-18891	29-11 TASK 839
		29-18892	29-11 TASK 878
		29-18893	29-11 TASK 913
		29-18894	29-11 TASK 914
		30-36121	30-31 TASK 801
		30-36122	30-31 TASK 802
		30-36123	30-31 TASK 803
		30-36421	30-31 TASK 804
		30-36423	30-31 TASK 805
		30-36521	30-31 TASK 806
		30-36523	30-31 TASK 810
		30-36641	30-31 TASK 807
		30-36642	30-31 TASK 808
		30-36643	30-31 TASK 809
		31-14011	31-09 TASK 812
		31-14012	31-09 TASK 813
		31-14013	31-09 TASK 814
		31-14014	31-09 TASK 815
		31-14015	31-09 TASK 816
		31-14016	31-09 TASK 817
		31-14017	31-09 TASK 818
		31-14018	31-09 TASK 818
		31-14051	31-09 TASK 821
		31-14052	31-09 TASK 822
		31-14053	31-09 TASK 823
		31-14054	31-09 TASK 824
		31-14055	31-09 TASK 825

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.97
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		31-14056	31-09 TASK 826
		31-14057	31-09 TASK 827
		31-14058	31-09 TASK 827
		31-17437	31-09 TASK 835
		31-17438	31-09 TASK 836
		31-17639	31-10 TASK 814
		31-17640	31-10 TASK 815
		31-17905	31-07 TASK 801
		31-17906	31-07 TASK 802
		31-17907	31-07 TASK 803
		31-17908	31-07 TASK 804
		31-17937	31-07 TASK 827
		31-17938	31-07 TASK 828
		31-17939	31-07 TASK 829
		31-17940	31-07 TASK 830
		31-17941	31-07 TASK 831
		31-17942	31-07 TASK 832
		31-17943	31-07 TASK 833
		31-17944	31-07 TASK 834
		31-18801	31-08 TASK 810
		31-18802	31-08 TASK 811
		31-18803	31-08 TASK 812
		31-18804	31-08 TASK 813
		31-18841	31-08 TASK 814
		31-18842	31-08 TASK 814
		31-18863	31-08 TASK 816
		31-18864	31-08 TASK 817
		31-50007	31-44 TASK 821
		31-50008	31-44 TASK 822
		31-50011	31-44 TASK 801
		31-50012	31-44 TASK 802
		31-50017	31-44 TASK 823
		31-50018	31-44 TASK 824
		31-50027	31-44 TASK 825
		31-50028	31-44 TASK 826

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.98
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		31-50091	31-44 TASK 819
		31-50092	31-44 TASK 820
		31-50201	31-43 TASK 852
		31-50202	31-43 TASK 853
		31-50418	31-44 TASK 885
		31-50427	31-44 TASK 886
		31-50428	31-44 TASK 887
		31-50437	31-44 TASK 888
		31-50438	31-44 TASK 889
		31-50447	31-44 TASK 890
		31-50448	31-44 TASK 891
		31-51023	31-44 TASK 865
		31-51024	31-44 TASK 866
		31-51025	31-43 TASK 803
		31-51026	31-43 TASK 804
		31-51033	31-44 TASK 869
		31-51034	31-44 TASK 870
		31-51043	31-44 TASK 871
		31-51044	31-44 TASK 872
		31-51411	34-61 TASK 913
		31-51412	34-61 TASK 914
		31-51413	34-61 TASK 815
		31-51414	34-61 TASK 889
		31-51421	34-61 TASK 888
		31-51422	34-61 TASK 814
		31-51423	34-61 TASK 815
		31-51424	34-61 TASK 889
		31-51531	31-44 TASK 837
		31-51532	31-44 TASK 838
		31-51533	31-44 TASK 839
		31-51534	31-44 TASK 840
		31-51731	31-44 TASK 841
		31-51732	31-44 TASK 842
		31-51733	31-44 TASK 843
		31-51734	31-44 TASK 844

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.99
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		31-52013	31-43 TASK 866
		31-52014	31-43 TASK 867
		31-52101	31-41 TASK 817
		31-52112	31-41 TASK 820
		31-52121	31-41 TASK 821
		31-52122	31-41 TASK 822
		31-52601	31-41 TASK 832
		31-52602	31-41 TASK 833
		31-53401	31-41 TASK 832
		31-53402	31-41 TASK 833
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54101	31-41 TASK 834
		31-54102	31-41 TASK 835
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-54332	31-41 TASK 917
		31-54362	31-41 TASK 917
		31-54371	31-41 TASK 916
		31-54381	31-41 TASK 916
		31-54601	31-41 TASK 840
		31-54602	31-41 TASK 841
		31-55401	31-41 TASK 840
		31-55402	31-41 TASK 841
		31-55721	31-41 TASK 840
		31-55722	31-41 TASK 841
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56102	31-41 TASK 845
		31-56111	31-41 TASK 846
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-56601	31-41 TASK 842
		31-56602	31-41 TASK 843
		31-58013	31-43 TASK 872

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.100
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		31-58014	31-43 TASK 873
		31-58101	31-41 TASK 852
		31-58102	31-41 TASK 853
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-58331	31-41 TASK 921
		31-58442	31-41 TASK 922
		31-58601	31-41 TASK 992
		31-58602	31-41 TASK 993
		31-59401	31-41 TASK 992
		31-59402	31-41 TASK 993
		31-59721	31-41 TASK 858
		31-59732	31-41 TASK 859
		31-61011	31-43 TASK 861
		31-61012	31-43 TASK 862
		31-61020	31-43 TASK 863
		31-61031	31-41 TASK 862
		31-61032	31-41 TASK 891
		31-61041	31-43 TASK 835
		31-61042	31-43 TASK 836
		31-61051	31-43 TASK 837
		31-61052	31-43 TASK 838
		31-61061	31-43 TASK 839
		31-61062	31-43 TASK 840
		31-61071	31-43 TASK 841
		31-61072	31-43 TASK 842
		31-61111	31-43 TASK 856
		31-61112	31-43 TASK 856
		31-61113	31-43 TASK 856
		31-61114	31-43 TASK 856
		31-61115	31-43 TASK 856
		31-61116	31-43 TASK 856
		31-61117	31-43 TASK 856
		31-61118	31-43 TASK 856
		31-68801	31-43 TASK 892

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.101
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		31-68802	31-43 TASK 893
		31-68811	31-42 TASK 908
		31-68832	31-42 TASK 908
		31-69101	31-42 TASK 801
		31-69302	31-42 TASK 817
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69443	31-42 TASK 841
		31-69444	31-42 TASK 841
		31-69445	31-42 TASK 841
		31-69446	31-42 TASK 841
		31-69471	31-42 TASK 850
		31-69472	31-42 TASK 850
		31-69496	31-42 TASK 915
		31-69497	31-42 TASK 915
		31-69501	31-42 TASK 852
		31-69502	31-42 TASK 852
		31-69569	31-42 TASK 856
		31-69573	31-42 TASK 856
		31-69574	31-42 TASK 856
		31-69579	31-42 TASK 856
		31-69580	31-42 TASK 856
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		31-69643	31-42 TASK 871
		31-69644	31-42 TASK 871
		31-69645	31-42 TASK 871
		31-69646	31-42 TASK 871
		31-69675	31-42 TASK 877
		31-69973	31-42 TASK 899
		31-69974	31-42 TASK 899
		31-69975	31-42 TASK 899
		31-69976	31-42 TASK 899
		31-69977	31-42 TASK 899
		31-69978	31-42 TASK 899

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.102
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		31-89417	31-42 TASK 915
		31-89418	31-42 TASK 915
		31-89617	31-42 TASK 916
		31-89618	31-42 TASK 916
		31-89619	31-42 TASK 916
		31-89620	31-42 TASK 916
		32-21000	32-09 TASK 807
		32-21001	32-09 TASK 808
		32-21100	32-09 TASK 802
		32-21101	32-09 TASK 801
		32-21300	32-09 TASK 803
		32-21301	32-09 TASK 804
		32-22000	32-09 TASK 809
		32-22001	32-09 TASK 809
		32-22100	32-09 TASK 809
		32-22101	32-09 TASK 809
		32-28801	32-09 TASK 821
		32-28802	32-09 TASK 822
		32-28891	32-09 TASK 823
		32-28892	32-09 TASK 824
		32-71091	32-07 TASK 815
		32-71092	32-07 TASK 815
		32-71131	32-07 TASK 811
		32-71140	32-07 TASK 817
		32-71150	32-07 TASK 815
		32-71201	32-07 TASK 811
		32-71202	32-07 TASK 813
		32-71220	32-07 TASK 815
		32-71242	32-07 TASK 815
		32-71252	32-07 TASK 818
		32-71262	32-07 TASK 813
		32-71481	32-07 TASK 811
		32-71482	32-07 TASK 813
		32-71561	32-07 TASK 811
		32-71562	32-07 TASK 813

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.103
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		32-71571	32-07 TASK 811
		32-71572	32-07 TASK 813
		32-71681	32-07 TASK 881
		32-71682	32-07 TASK 882
		32-71720	32-62 TASK 801
		32-71730	32-62 TASK 801
		32-71740	32-62 TASK 801
		32-71760	32-62 TASK 801
		32-71770	32-62 TASK 811
		32-71780	32-62 TASK 811
		32-71790	32-62 TASK 811
		32-71800	32-62 TASK 811
		32-71810	32-62 TASK 811
		32-71830	32-62 TASK 811
		32-71840	32-62 TASK 811
		32-71850	32-62 TASK 811
		32-71860	32-62 TASK 811
		32-71870	32-62 TASK 811
		32-71872	32-62 TASK 805
		32-71874	32-62 TASK 813
		32-71876	32-62 TASK 814
		32-71880	32-62 TASK 817
		32-71890	32-62 TASK 817
		32-71900	32-62 TASK 817
		32-71910	32-62 TASK 807
		32-71920	32-62 TASK 808
		32-71930	32-62 TASK 819
		32-71940	32-62 TASK 819
		32-71950	32-62 TASK 819
		32-71970	32-62 TASK 820
		32-71980	32-62 TASK 817
		32-71990	32-62 TASK 817
		32-72000	32-62 TASK 817
		32-72010	32-62 TASK 807
		32-72020	32-62 TASK 808

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.104
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		32-72131	32-07 TASK 835
		32-72132	32-07 TASK 835
		32-72182	32-07 TASK 831
		32-72192	32-07 TASK 844
		32-72202	32-07 TASK 835
		32-72250	32-07 TASK 835
		32-72271	32-07 TASK 835
		32-72274	32-62 TASK 816
		32-72276	32-62 TASK 815
		32-72281	32-07 TASK 845
		32-72291	32-07 TASK 829
		32-72351	32-07 TASK 829
		32-72352	32-07 TASK 831
		32-72441	32-07 TASK 829
		32-72442	32-07 TASK 831
		32-72451	32-07 TASK 829
		32-72452	32-07 TASK 831
		32-72531	32-07 TASK 894
		32-72532	32-07 TASK 895
		32-72570	32-62 TASK 804
		32-72580	32-62 TASK 804
		32-72590	32-62 TASK 804
		32-72610	32-62 TASK 804
		32-72620	32-62 TASK 812
		32-72630	32-62 TASK 812
		32-72640	32-62 TASK 812
		32-72650	32-62 TASK 812
		32-72660	32-62 TASK 812
		32-72670	32-62 TASK 812
		32-72680	32-62 TASK 812
		32-72690	32-62 TASK 812
		32-72700	32-62 TASK 812
		32-72710	32-62 TASK 812
		32-72722	32-62 TASK 806
		32-72730	32-62 TASK 818

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.105
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		32-72740	32-62 TASK 818
		32-72750	32-62 TASK 818
		32-72760	32-62 TASK 809
		32-72770	32-62 TASK 810
		32-72780	32-62 TASK 821
		32-72790	32-62 TASK 821
		32-72800	32-62 TASK 821
		32-72820	32-62 TASK 822
		32-72830	32-62 TASK 818
		32-72840	32-62 TASK 818
		32-72850	32-62 TASK 818
		32-72860	32-62 TASK 809
		32-72870	32-62 TASK 810
		32-73320	32-07 TASK 924
		32-73350	32-07 TASK 925
		32-73481	32-07 TASK 914
		32-73482	32-07 TASK 915
		32-73491	32-07 TASK 912
		32-73492	32-07 TASK 913
		32-73501	32-07 TASK 914
		32-73502	32-07 TASK 915
		32-73511	32-07 TASK 912
		32-73512	32-07 TASK 913
		32-78841	32-06 TASK 801
		32-78842	32-06 TASK 802
		32-78863	32-06 TASK 803
		32-78864	32-06 TASK 804
		34-25101	34-11 TASK 801
		34-25102	34-11 TASK 802
		34-25103	34-11 TASK 803
		34-25201	34-11 TASK 804
		34-25202	34-11 TASK 805
		34-25203	34-11 TASK 806
		34-25601	34-21 TASK 808
		34-25603	34-21 TASK 885

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.106
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		34-25800	34-21 TASK 809
		34-26101	34-21 TASK 810
		34-26102	34-21 TASK 839
		34-26103	34-21 TASK 840
		34-26201	34-21 TASK 843
		34-26202	34-21 TASK 844
		34-26203	34-21 TASK 845
		34-28801	34-21 TASK 848
		34-28810	34-21 TASK 849
		34-28813	34-21 TASK 813
		34-28816	34-21 TASK 814
		34-28824	34-21 TASK 850
		34-28827	34-21 TASK 851
		34-28830	34-21 TASK 852
		34-28835	34-21 TASK 853
		34-28838	34-21 TASK 854
		34-29101	34-21 TASK 893
		34-29102	34-21 TASK 815
		34-29105	34-21 TASK 816
		34-29107	34-21 TASK 817
		34-29115	34-21 TASK 857
		34-29120	34-21 TASK 894
		34-29201	34-21 TASK 858
		34-29202	34-21 TASK 859
		34-29204	34-21 TASK 860
		34-29216	34-21 TASK 862
		34-29301	34-21 TASK 895
		34-29303	34-21 TASK 864
		34-29306	34-21 TASK 865
		34-29308	34-21 TASK 866
		34-29317	34-21 TASK 869
		34-29320	34-21 TASK 896
		34-30700	34-21 TASK 870
		34-30711	34-21 TASK 818
		34-30713	34-21 TASK 872

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.107
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		34-30760	34-21 TASK 819
		34-31601	34-21 TASK 821
		34-32601	34-21 TASK 822
		34-32803	34-21 TASK 822
		34-33800	34-21 TASK 886
		34-34603	34-21 TASK 887
		34-35603	34-21 TASK 888
		34-36800	34-21 TASK 890
		34-38310	34-21 TASK 819
		34-38801	34-21 TASK 874
		34-38820	34-21 TASK 898
		34-39101	34-21 TASK 825
		34-39103	34-21 TASK 826
		34-39106	34-21 TASK 827
		34-39111	34-21 TASK 828
		34-39118	34-21 TASK 829
		34-39201	34-21 TASK 871
		34-39204	34-21 TASK 876
		34-39207	34-21 TASK 877
		34-39301	34-21 TASK 879
		34-39305	34-21 TASK 880
		34-39308	34-21 TASK 881
		34-39312	34-21 TASK 882
		34-39318	34-21 TASK 884
		34-42011	34-33 TASK 801
		34-42012	34-33 TASK 801
		34-42013	34-33 TASK 801
		34-42021	34-33 TASK 802
		34-42022	34-33 TASK 812
		34-42023	34-33 TASK 813
		34-42031	34-33 TASK 814
		34-42032	34-33 TASK 815
		34-42033	34-33 TASK 816
		34-42801	34-33 TASK 801
		34-42802	34-33 TASK 801

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.108
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		34-42803	34-33 TASK 801
		34-42891	34-33 TASK 803
		34-42892	34-33 TASK 804
		34-42893	34-33 TASK 805
		34-71011	34-61 TASK 905
		34-71012	34-61 TASK 906
		34-71060	34-90 TASK 801
		73-03031	73-26 TASK 803
		73-03032	73-26 TASK 804
		73-03261	73-26 TASK 847
		73-03262	73-26 TASK 848
		73-08801	73-27 TASK 805
		73-08802	73-27 TASK 805
		73-08803	73-27 TASK 810
		73-08804	73-27 TASK 810
		73-08805	73-27 TASK 810
		73-08807	73-27 TASK 810
		73-08808	73-27 TASK 810
		73-08843	73-27 TASK 806
		73-08851	73-27 TASK 806
		73-08855	73-27 TASK 806
		73-08856	73-27 TASK 807
		73-08862	73-27 TASK 807
		73-09403	73-27 TASK 808
		73-09501	73-27 TASK 808
		73-09505	73-27 TASK 808
		73-09506	73-27 TASK 809
		73-09602	73-27 TASK 809
		73-13111	73-21 TASK 842
		73-13112	73-21 TASK 842
		73-23111	73-21 TASK 842
		73-23112	73-21 TASK 842
		76-15211	76-11 TASK 807
		76-15212	76-11 TASK 807
		76-25211	76-11 TASK 808

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.109
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 011 00	AUTO SPEEDBRAKE (EICAS ADVISORY)	(continued)	
		76-25212	76-11 TASK 808
		NONE	27-62 TASK 809
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	21-16205	21-25 TASK 823
		23-41110	23-93 TASK 801
		23-41120	23-93 TASK 803
		23-41130	23-93 TASK 801
		23-41140	23-93 TASK 803
		23-42110	23-93 TASK 802
		23-42120	23-93 TASK 804
		23-42130	23-93 TASK 802
		23-42140	23-93 TASK 804
		23-43110	29-11 TASK 880
		23-43120	29-11 TASK 881
		23-43130	29-11 TASK 882
		23-43140	29-11 TASK 883
		23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81005	23-91 TASK 805
		23-81006	23-91 TASK 806
		23-81007	23-91 TASK 807
		24-11780	24-53 TASK 805
		24-11781	24-51 TASK 837
		24-11782	24-51 TASK 838
		24-11784	24-51 TASK 836
		24-11786	24-51 TASK 833
		24-11787	24-32 TASK 817
		24-11790	24-08 TASK 833
		24-11793	24-08 TASK 834
		24-11795	24-08 TASK 804
		24-11796	24-08 TASK 804
		24-12051	24-32 TASK 819
		24-12056	24-32 TASK 820
		24-12057	24-08 TASK 836

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.110
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		24-12122	24-08 TASK 835
		24-12124	24-51 TASK 840
		24-12125	24-51 TASK 841
		24-12126	24-51 TASK 841
		24-12127	24-51 TASK 842
		24-12128	24-51 TASK 843
		24-12800	24-08 TASK 805
		24-12801	24-08 TASK 805
		24-13801	24-61 TASK 805
		24-13815	24-61 TASK 806
		24-13816	24-32 TASK 831
		24-13817	24-33 TASK 818
		24-18801	24-09 TASK 806
		24-18802	24-09 TASK 807
		24-78841	24-08 TASK 860
		24-78842	24-08 TASK 862
		24-78861	24-08 TASK 861
		24-78862	24-08 TASK 863
		27-10000	27-41 TASK 826
		27-10001	27-41 TASK 801
		27-10002	27-41 TASK 827
		27-10003	27-41 TASK 802
		27-10004	27-41 TASK 828
		27-10005	27-41 TASK 803
		27-10006	27-41 TASK 845
		27-10007	27-41 TASK 829
		27-10008	27-41 TASK 804
		27-10017	27-41 TASK 806
		27-10018	27-41 TASK 833
		27-10019	27-41 TASK 834
		27-10020	27-41 TASK 819
		27-10021	27-41 TASK 835
		27-10022	27-41 TASK 814
		27-10023	27-41 TASK 836
		27-10024	27-41 TASK 815

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.111
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		27-10100	27-31 TASK 868
		27-10101	27-31 TASK 801
		27-10102	27-31 TASK 869
		27-10103	27-31 TASK 870
		27-10600	27-62 TASK 801
		27-10601	27-62 TASK 802
		27-10602	27-62 TASK 805
		27-11000	27-41 TASK 807
		27-11001	27-41 TASK 810
		27-11002	27-41 TASK 811
		27-11003	27-41 TASK 820
		27-11004	27-41 TASK 837
		27-11005	27-41 TASK 838
		27-11006	27-41 TASK 808
		27-11100	27-31 TASK 855
		27-11101	27-31 TASK 826
		27-11102	27-31 TASK 856
		27-11103	27-31 TASK 857
		27-11106	27-31 TASK 813
		27-11107	27-31 TASK 804
		27-11108	27-31 TASK 814
		27-11109	27-31 TASK 815
		27-11114	27-31 TASK 887
		27-11115	27-31 TASK 806
		27-11116	27-31 TASK 888
		27-11117	27-31 TASK 889
		27-12000	27-11 TASK 846
		27-12001	27-11 TASK 907
		27-12002	27-11 TASK 908
		27-12003	27-11 TASK 834
		27-12004	27-11 TASK 890
		27-12005	27-11 TASK 891
		27-12006	27-11 TASK 843
		27-12007	27-11 TASK 909
		27-12008	27-11 TASK 910

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.112
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		27-12009	27-11 TASK 911
		27-12010	27-11 TASK 849
		27-12011	27-11 TASK 850
		27-12012	27-11 TASK 884
		27-12013	27-11 TASK 843
		27-12100	27-31 TASK 807
		27-12101	27-31 TASK 816
		27-12102	27-31 TASK 817
		27-12103	27-31 TASK 808
		27-12104	27-31 TASK 818
		27-12105	27-31 TASK 819
		27-12106	27-31 TASK 809
		27-12107	27-31 TASK 858
		27-12108	27-31 TASK 859
		27-12109	27-31 TASK 860
		27-12110	27-31 TASK 861
		27-12111	27-31 TASK 862
		27-12112	27-31 TASK 863
		27-12113	27-31 TASK 809
		27-12200	27-21 TASK 813
		27-12201	27-21 TASK 858
		27-12202	27-21 TASK 859
		27-12203	27-21 TASK 860
		27-12204	27-21 TASK 814
		27-12205	27-21 TASK 814
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-13008	27-02 TASK 807
		27-13009	27-02 TASK 877
		27-13010	27-02 TASK 878
		27-13011	27-02 TASK 879
		27-13012	27-02 TASK 821
		27-13013	27-02 TASK 822

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.113
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		27-13014	27-02 TASK 823
		27-13015	27-02 TASK 824
		27-13016	27-02 TASK 817
		27-13017	27-02 TASK 825
		27-13018	27-02 TASK 826
		27-13019	27-02 TASK 827
		27-13020	27-02 TASK 818
		27-13022	27-02 TASK 829
		27-13023	27-02 TASK 830
		27-13025	27-02 TASK 819
		27-13026	27-02 TASK 832
		27-13027	27-02 TASK 833
		27-13046	27-02 TASK 805
		27-13047	27-02 TASK 862
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-14018	27-02 TASK 813
		27-14019	27-02 TASK 941
		27-14020	27-02 TASK 942
		27-14024	27-02 TASK 806
		27-14025	27-02 TASK 943
		27-14026	27-02 TASK 944
		27-14027	27-02 TASK 945
		27-14030	27-02 TASK 905
		27-14031	27-02 TASK 906
		27-14032	27-02 TASK 907
		27-14033	27-02 TASK 908
		27-15009	27-02 TASK 802
		27-15010	27-02 TASK 849
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15013	27-41 TASK 843
		27-15014	27-41 TASK 817
		27-15015	27-41 TASK 844
		27-15016	27-41 TASK 818

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.114
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		27-15032	27-62 TASK 803
		27-15033	27-62 TASK 804
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-17020	27-02 TASK 889
		27-17022	27-02 TASK 816
		27-17023	27-02 TASK 891
		27-17024	27-02 TASK 892
		27-18570	27-02 TASK 971
		27-18580	27-02 TASK 971
		27-18811	27-02 TASK 901
		27-18822	27-02 TASK 919
		27-18830	27-02 TASK 898
		27-18833	27-02 TASK 920
		27-18850	27-61 TASK 829
		27-18860	27-02 TASK 895
		27-18910	27-02 TASK 896
		27-19010	27-02 TASK 899
		27-19101	27-02 TASK 974
		27-19104	27-02 TASK 975
		27-19110	27-02 TASK 976
		27-19201	27-02 TASK 979
		27-19237	27-02 TASK 982
		27-19301	27-02 TASK 983
		27-19307	27-02 TASK 984
		27-19310	27-02 TASK 985
		27-19470	27-02 TASK 897
		27-19510	27-02 TASK 904
		27-19550	27-02 TASK A19
		27-19630	27-02 TASK A20
		29-10130	29-11 TASK 845
		29-10150	29-11 TASK 894
		29-10180	29-11 TASK 803
		29-10190	29-11 TASK 853

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.115
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		29-10220	29-11 TASK 929
		29-10230	29-11 TASK 930
		29-10420	29-11 TASK 814
		29-10430	29-11 TASK 815
		29-10440	29-11 TASK 816
		29-10470	29-11 TASK 858
		29-10480	29-11 TASK 859
		29-10490	29-11 TASK 860
		29-10510	29-11 TASK 819
		29-10530	29-11 TASK 862
		29-10550	29-11 TASK 896
		29-10570	29-11 TASK 898
		29-10580	29-11 TASK 863
		29-10760	29-11 TASK 830
		29-10810	29-11 TASK 835
		29-10820	29-11 TASK 805
		29-10870	29-11 TASK 874
		29-10880	29-11 TASK 854
		29-10950	29-11 TASK 836
		29-10980	29-11 TASK 908
		29-11020	29-11 TASK 840
		29-11030	29-11 TASK 879
		29-11040	29-11 TASK 841
		29-11060	29-11 TASK 928
		29-11070	29-11 TASK 928
		29-11080	29-11 TASK 928
		29-11090	29-11 TASK 928
		29-11100	29-11 TASK 838
		29-11110	29-11 TASK 877
		29-17006	29-11 TASK 949
		29-17008	29-11 TASK 951
		29-17009	29-11 TASK 952
		29-17010	29-11 TASK 953
		29-17022	29-11 TASK 958
		29-17023	29-11 TASK 959

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.116
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		29-18891	29-11 TASK 839
		29-18892	29-11 TASK 878
		29-18893	29-11 TASK 913
		29-18894	29-11 TASK 914
		30-36121	30-31 TASK 801
		30-36122	30-31 TASK 802
		30-36123	30-31 TASK 803
		30-36421	30-31 TASK 804
		30-36423	30-31 TASK 805
		30-36521	30-31 TASK 806
		30-36523	30-31 TASK 810
		30-36641	30-31 TASK 807
		30-36642	30-31 TASK 808
		30-36643	30-31 TASK 809
		31-14011	31-09 TASK 812
		31-14012	31-09 TASK 813
		31-14013	31-09 TASK 814
		31-14014	31-09 TASK 815
		31-14015	31-09 TASK 816
		31-14016	31-09 TASK 817
		31-14017	31-09 TASK 818
		31-14018	31-09 TASK 818
		31-14051	31-09 TASK 821
		31-14052	31-09 TASK 822
		31-14053	31-09 TASK 823
		31-14054	31-09 TASK 824
		31-14055	31-09 TASK 825
		31-14056	31-09 TASK 826
		31-14057	31-09 TASK 827
		31-14058	31-09 TASK 827
		31-17437	31-09 TASK 835
		31-17438	31-09 TASK 836
		31-17639	31-10 TASK 814
		31-17640	31-10 TASK 815
		31-17905	31-07 TASK 801

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.117
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		31-17906	31-07 TASK 802
		31-17907	31-07 TASK 803
		31-17908	31-07 TASK 804
		31-17937	31-07 TASK 827
		31-17938	31-07 TASK 828
		31-17939	31-07 TASK 829
		31-17940	31-07 TASK 830
		31-17941	31-07 TASK 831
		31-17942	31-07 TASK 832
		31-17943	31-07 TASK 833
		31-17944	31-07 TASK 834
		31-18801	31-08 TASK 810
		31-18802	31-08 TASK 811
		31-18803	31-08 TASK 812
		31-18804	31-08 TASK 813
		31-18841	31-08 TASK 814
		31-18842	31-08 TASK 814
		31-18863	31-08 TASK 816
		31-18864	31-08 TASK 817
		31-50007	31-44 TASK 821
		31-50008	31-44 TASK 822
		31-50011	31-44 TASK 801
		31-50012	31-44 TASK 802
		31-50017	31-44 TASK 823
		31-50018	31-44 TASK 824
		31-50027	31-44 TASK 825
		31-50028	31-44 TASK 826
		31-50091	31-44 TASK 819
		31-50092	31-44 TASK 820
		31-50201	31-43 TASK 852
		31-50202	31-43 TASK 853
		31-50418	31-44 TASK 885
		31-50427	31-44 TASK 886
		31-50428	31-44 TASK 887
		31-50437	31-44 TASK 888

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.118
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		31-50438	31-44 TASK 889
		31-50447	31-44 TASK 890
		31-50448	31-44 TASK 891
		31-51023	31-44 TASK 865
		31-51024	31-44 TASK 866
		31-51025	31-43 TASK 803
		31-51026	31-43 TASK 804
		31-51033	31-44 TASK 869
		31-51034	31-44 TASK 870
		31-51043	31-44 TASK 871
		31-51044	31-44 TASK 872
		31-51411	34-61 TASK 913
		31-51412	34-61 TASK 914
		31-51413	34-61 TASK 815
		31-51414	34-61 TASK 889
		31-51421	34-61 TASK 888
		31-51422	34-61 TASK 814
		31-51423	34-61 TASK 815
		31-51424	34-61 TASK 889
		31-51531	31-44 TASK 837
		31-51532	31-44 TASK 838
		31-51533	31-44 TASK 839
		31-51534	31-44 TASK 840
		31-51731	31-44 TASK 841
		31-51732	31-44 TASK 842
		31-51733	31-44 TASK 843
		31-51734	31-44 TASK 844
		31-52013	31-43 TASK 866
		31-52014	31-43 TASK 867
		31-52101	31-41 TASK 817
		31-52112	31-41 TASK 820
		31-52121	31-41 TASK 821
		31-52122	31-41 TASK 822
		31-52601	31-41 TASK 832
		31-52602	31-41 TASK 833

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.119
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		31-53401	31-41 TASK 832
		31-53402	31-41 TASK 833
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54101	31-41 TASK 834
		31-54102	31-41 TASK 835
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-54332	31-41 TASK 917
		31-54362	31-41 TASK 917
		31-54371	31-41 TASK 916
		31-54381	31-41 TASK 916
		31-54601	31-41 TASK 840
		31-54602	31-41 TASK 841
		31-55401	31-41 TASK 840
		31-55402	31-41 TASK 841
		31-55721	31-41 TASK 840
		31-55722	31-41 TASK 841
		31-56013	31-43 TASK 870
		31-56014	31-43 TASK 871
		31-56102	31-41 TASK 845
		31-56111	31-41 TASK 846
		31-56121	31-41 TASK 848
		31-56122	31-41 TASK 849
		31-56601	31-41 TASK 842
		31-56602	31-41 TASK 843
		31-58013	31-43 TASK 872
		31-58014	31-43 TASK 873
		31-58101	31-41 TASK 852
		31-58102	31-41 TASK 853
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-58331	31-41 TASK 921
		31-58442	31-41 TASK 922
		31-58601	31-41 TASK 992

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.120
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		31-58602	31-41 TASK 993
		31-59401	31-41 TASK 992
		31-59402	31-41 TASK 993
		31-59721	31-41 TASK 858
		31-59732	31-41 TASK 859
		31-61011	31-43 TASK 861
		31-61012	31-43 TASK 862
		31-61020	31-43 TASK 863
		31-61031	31-41 TASK 862
		31-61032	31-41 TASK 891
		31-61041	31-43 TASK 835
		31-61042	31-43 TASK 836
		31-61051	31-43 TASK 837
		31-61052	31-43 TASK 838
		31-61061	31-43 TASK 839
		31-61062	31-43 TASK 840
		31-61071	31-43 TASK 841
		31-61072	31-43 TASK 842
		31-61111	31-43 TASK 856
		31-61112	31-43 TASK 856
		31-61113	31-43 TASK 856
		31-61114	31-43 TASK 856
		31-61115	31-43 TASK 856
		31-61116	31-43 TASK 856
		31-61117	31-43 TASK 856
		31-61118	31-43 TASK 856
		31-68801	31-43 TASK 892
		31-68802	31-43 TASK 893
		31-68811	31-42 TASK 908
		31-68832	31-42 TASK 908
		31-69101	31-42 TASK 801
		31-69302	31-42 TASK 817
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69443	31-42 TASK 841

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.121
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		31-69444	31-42 TASK 841
		31-69445	31-42 TASK 841
		31-69446	31-42 TASK 841
		31-69471	31-42 TASK 850
		31-69472	31-42 TASK 850
		31-69496	31-42 TASK 915
		31-69497	31-42 TASK 915
		31-69501	31-42 TASK 852
		31-69502	31-42 TASK 852
		31-69569	31-42 TASK 856
		31-69573	31-42 TASK 856
		31-69574	31-42 TASK 856
		31-69579	31-42 TASK 856
		31-69580	31-42 TASK 856
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		31-69643	31-42 TASK 871
		31-69644	31-42 TASK 871
		31-69645	31-42 TASK 871
		31-69646	31-42 TASK 871
		31-69675	31-42 TASK 877
		31-69973	31-42 TASK 899
		31-69974	31-42 TASK 899
		31-69975	31-42 TASK 899
		31-69976	31-42 TASK 899
		31-69977	31-42 TASK 899
		31-69978	31-42 TASK 899
		31-89417	31-42 TASK 915
		31-89418	31-42 TASK 915
		31-89617	31-42 TASK 916
		31-89618	31-42 TASK 916
		31-89619	31-42 TASK 916
		31-89620	31-42 TASK 916
		32-21000	32-09 TASK 807
		32-21001	32-09 TASK 808

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.122
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		32-21100	32-09 TASK 802
		32-21101	32-09 TASK 801
		32-21300	32-09 TASK 803
		32-21301	32-09 TASK 804
		32-22000	32-09 TASK 809
		32-22001	32-09 TASK 809
		32-22100	32-09 TASK 809
		32-22101	32-09 TASK 809
		32-28801	32-09 TASK 821
		32-28802	32-09 TASK 822
		32-28891	32-09 TASK 823
		32-28892	32-09 TASK 824
		32-71091	32-07 TASK 815
		32-71092	32-07 TASK 815
		32-71131	32-07 TASK 811
		32-71140	32-07 TASK 817
		32-71150	32-07 TASK 815
		32-71201	32-07 TASK 811
		32-71202	32-07 TASK 813
		32-71220	32-07 TASK 815
		32-71242	32-07 TASK 815
		32-71252	32-07 TASK 818
		32-71262	32-07 TASK 813
		32-71481	32-07 TASK 811
		32-71482	32-07 TASK 813
		32-71561	32-07 TASK 811
		32-71562	32-07 TASK 813
		32-71571	32-07 TASK 811
		32-71572	32-07 TASK 813
		32-71681	32-07 TASK 881
		32-71682	32-07 TASK 882
		32-71720	32-62 TASK 801
		32-71730	32-62 TASK 801
		32-71740	32-62 TASK 801
		32-71760	32-62 TASK 801

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.123
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		32-71770	32-62 TASK 811
		32-71780	32-62 TASK 811
		32-71790	32-62 TASK 811
		32-71800	32-62 TASK 811
		32-71810	32-62 TASK 811
		32-71830	32-62 TASK 811
		32-71840	32-62 TASK 811
		32-71850	32-62 TASK 811
		32-71860	32-62 TASK 811
		32-71870	32-62 TASK 811
		32-71872	32-62 TASK 805
		32-71874	32-62 TASK 813
		32-71876	32-62 TASK 814
		32-71880	32-62 TASK 817
		32-71890	32-62 TASK 817
		32-71900	32-62 TASK 817
		32-71910	32-62 TASK 807
		32-71920	32-62 TASK 808
		32-71930	32-62 TASK 819
		32-71940	32-62 TASK 819
		32-71950	32-62 TASK 819
		32-71970	32-62 TASK 820
		32-71980	32-62 TASK 817
		32-71990	32-62 TASK 817
		32-72000	32-62 TASK 817
		32-72010	32-62 TASK 807
		32-72020	32-62 TASK 808
		32-72131	32-07 TASK 835
		32-72132	32-07 TASK 835
		32-72182	32-07 TASK 831
		32-72192	32-07 TASK 844
		32-72202	32-07 TASK 835
		32-72250	32-07 TASK 835
		32-72271	32-07 TASK 835
		32-72274	32-62 TASK 816

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.124
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		32-72276	32-62 TASK 815
		32-72281	32-07 TASK 845
		32-72291	32-07 TASK 829
		32-72351	32-07 TASK 829
		32-72352	32-07 TASK 831
		32-72441	32-07 TASK 829
		32-72442	32-07 TASK 831
		32-72451	32-07 TASK 829
		32-72452	32-07 TASK 831
		32-72531	32-07 TASK 894
		32-72532	32-07 TASK 895
		32-72570	32-62 TASK 804
		32-72580	32-62 TASK 804
		32-72590	32-62 TASK 804
		32-72610	32-62 TASK 804
		32-72620	32-62 TASK 812
		32-72630	32-62 TASK 812
		32-72640	32-62 TASK 812
		32-72650	32-62 TASK 812
		32-72660	32-62 TASK 812
		32-72670	32-62 TASK 812
		32-72680	32-62 TASK 812
		32-72690	32-62 TASK 812
		32-72700	32-62 TASK 812
		32-72710	32-62 TASK 812
		32-72722	32-62 TASK 806
		32-72730	32-62 TASK 818
		32-72740	32-62 TASK 818
		32-72750	32-62 TASK 818
		32-72760	32-62 TASK 809
		32-72770	32-62 TASK 810
		32-72780	32-62 TASK 821
		32-72790	32-62 TASK 821
		32-72800	32-62 TASK 821
		32-72820	32-62 TASK 822

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.125
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		32-72830	32-62 TASK 818
		32-72840	32-62 TASK 818
		32-72850	32-62 TASK 818
		32-72860	32-62 TASK 809
		32-72870	32-62 TASK 810
		32-73320	32-07 TASK 924
		32-73350	32-07 TASK 925
		32-73481	32-07 TASK 914
		32-73482	32-07 TASK 915
		32-73491	32-07 TASK 912
		32-73492	32-07 TASK 913
		32-73501	32-07 TASK 914
		32-73502	32-07 TASK 915
		32-73511	32-07 TASK 912
		32-73512	32-07 TASK 913
		32-78841	32-06 TASK 801
		32-78842	32-06 TASK 802
		32-78863	32-06 TASK 803
		32-78864	32-06 TASK 804
		34-25101	34-11 TASK 801
		34-25102	34-11 TASK 802
		34-25103	34-11 TASK 803
		34-25201	34-11 TASK 804
		34-25202	34-11 TASK 805
		34-25203	34-11 TASK 806
		34-25601	34-21 TASK 808
		34-25603	34-21 TASK 885
		34-25800	34-21 TASK 809
		34-26101	34-21 TASK 810
		34-26102	34-21 TASK 839
		34-26103	34-21 TASK 840
		34-26201	34-21 TASK 843
		34-26202	34-21 TASK 844
		34-26203	34-21 TASK 845
		34-28801	34-21 TASK 848

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.126
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		34-28810	34-21 TASK 849
		34-28813	34-21 TASK 813
		34-28816	34-21 TASK 814
		34-28824	34-21 TASK 850
		34-28827	34-21 TASK 851
		34-28830	34-21 TASK 852
		34-28835	34-21 TASK 853
		34-28838	34-21 TASK 854
		34-29101	34-21 TASK 893
		34-29102	34-21 TASK 815
		34-29105	34-21 TASK 816
		34-29107	34-21 TASK 817
		34-29115	34-21 TASK 857
		34-29120	34-21 TASK 894
		34-29201	34-21 TASK 858
		34-29202	34-21 TASK 859
		34-29204	34-21 TASK 860
		34-29216	34-21 TASK 862
		34-29301	34-21 TASK 895
		34-29303	34-21 TASK 864
		34-29306	34-21 TASK 865
		34-29308	34-21 TASK 866
		34-29317	34-21 TASK 869
		34-29320	34-21 TASK 896
		34-30700	34-21 TASK 870
		34-30711	34-21 TASK 818
		34-30713	34-21 TASK 872
		34-30760	34-21 TASK 819
		34-31601	34-21 TASK 821
		34-32601	34-21 TASK 822
		34-32803	34-21 TASK 822
		34-33800	34-21 TASK 886
		34-34603	34-21 TASK 887
		34-35603	34-21 TASK 888
		34-36800	34-21 TASK 890

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.127
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		34-38310	34-21 TASK 819
		34-38801	34-21 TASK 874
		34-38820	34-21 TASK 898
		34-39101	34-21 TASK 825
		34-39103	34-21 TASK 826
		34-39106	34-21 TASK 827
		34-39111	34-21 TASK 828
		34-39118	34-21 TASK 829
		34-39201	34-21 TASK 871
		34-39204	34-21 TASK 876
		34-39207	34-21 TASK 877
		34-39301	34-21 TASK 879
		34-39305	34-21 TASK 880
		34-39308	34-21 TASK 881
		34-39312	34-21 TASK 882
		34-39318	34-21 TASK 884
		34-42011	34-33 TASK 801
		34-42012	34-33 TASK 801
		34-42013	34-33 TASK 801
		34-42021	34-33 TASK 802
		34-42022	34-33 TASK 812
		34-42023	34-33 TASK 813
		34-42031	34-33 TASK 814
		34-42032	34-33 TASK 815
		34-42033	34-33 TASK 816
		34-42801	34-33 TASK 801
		34-42802	34-33 TASK 801
		34-42803	34-33 TASK 801
		34-42891	34-33 TASK 803
		34-42892	34-33 TASK 804
		34-42893	34-33 TASK 805
		34-71011	34-61 TASK 905
		34-71012	34-61 TASK 906
		34-71060	34-90 TASK 801
		73-03031	73-26 TASK 803

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.128
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 012 00	AUTO SPEEDBRAKE (EICAS STATUS)	(continued)	
		73-03032	73-26 TASK 804
		73-03261	73-26 TASK 847
		73-03262	73-26 TASK 848
		73-08801	73-27 TASK 805
		73-08802	73-27 TASK 805
		73-08803	73-27 TASK 810
		73-08804	73-27 TASK 810
		73-08805	73-27 TASK 810
		73-08807	73-27 TASK 810
		73-08808	73-27 TASK 810
		73-08843	73-27 TASK 806
		73-08851	73-27 TASK 806
		73-08855	73-27 TASK 806
		73-08856	73-27 TASK 807
		73-08862	73-27 TASK 807
		73-09403	73-27 TASK 808
		73-09501	73-27 TASK 808
		73-09505	73-27 TASK 808
		73-09506	73-27 TASK 809
		73-09602	73-27 TASK 809
		73-13111	73-21 TASK 842
		73-13112	73-21 TASK 842
		73-23111	73-21 TASK 842
		73-23112	73-21 TASK 842
		76-15211	76-11 TASK 807
		76-15212	76-11 TASK 807
		76-25211	76-11 TASK 808
		76-25212	76-11 TASK 808
		NONE	27-62 TASK 809
276 021 00	SPEEDBRAKE LEV XDCR (EICAS STATUS)	23-81001	23-91 TASK 801
		23-81002	23-91 TASK 802
		23-81003	23-91 TASK 803
		27-12300	27-61 TASK 816
		27-12301	27-61 TASK 835
		27-12302	27-61 TASK 836

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.129
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
276 021 00	SPEEDBRAKE LEV XDCR (EICAS STATUS)	(continued)	
		27-12303	27-61 TASK 837
		27-12304	27-61 TASK 817
		27-12305	27-61 TASK 838
		27-12306	27-61 TASK 839
		27-12307	27-61 TASK 840
		27-12308	27-61 TASK 818
		27-13000	27-02 TASK 880
		27-13001	27-02 TASK 881
		27-13002	27-02 TASK 808
		27-13003	27-02 TASK 809
		27-13008	27-02 TASK 807
		27-13009	27-02 TASK 877
		27-13010	27-02 TASK 878
		27-13011	27-02 TASK 879
		27-13028	27-02 TASK 834
		27-13029	27-02 TASK 820
		27-13030	27-02 TASK 835
		27-13031	27-02 TASK 836
		27-13046	27-02 TASK 805
		27-13047	27-02 TASK 862
		27-13048	27-02 TASK 863
		27-13049	27-02 TASK 864
		27-15009	27-02 TASK 802
		27-15010	27-02 TASK 849
		27-15011	27-02 TASK 850
		27-15012	27-02 TASK 851
		27-15100	27-02 TASK 946
		27-15101	27-02 TASK 947
		27-15102	27-02 TASK 948
		27-19101	27-02 TASK 974
		27-19201	27-02 TASK 979
		27-19301	27-02 TASK 983
276 499 00	SPEEDBRAKE ARMED (EICAS MEMO)		27-62 TASK 807
276 611 00	Speed brake lever: does not move freely.		27-61 TASK 830
276 621 00	Spoiler panel(s) float.		27-61 TASK 831

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.130
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
278 001 00	SLATS DRIVE (EICAS CAUTION)	27-20141	27-81 TASK 847
		27-20142	27-82 TASK 824
		27-20181	27-81 TASK 848
		27-20182	27-82 TASK 825
		27-20731	27-81 TASK 817
		27-20732	27-82 TASK 818
		27-20771	27-81 TASK 819
		27-20772	27-82 TASK 820
		27-20811	27-81 TASK 821
		27-20812	27-82 TASK 822
		27-20851	27-81 TASK 802
		27-20852	27-82 TASK 802
		27-20861	27-81 TASK 809
		27-20862	27-82 TASK 809
		27-20901	27-81 TASK 803
		27-20902	27-82 TASK 803
		27-20911	27-81 TASK 846
		27-20912	27-82 TASK 810
		27-20941	27-81 TASK 801
		27-20942	27-82 TASK 801
		27-21031	27-81 TASK 811
		27-21032	27-82 TASK 812
		27-21051	27-81 TASK 813
		27-21052	27-82 TASK 814
		27-21061	27-89 TASK 810
		27-21062	27-89 TASK 817
		27-21071	27-89 TASK 802
		27-21072	27-89 TASK 816
		27-21081	27-89 TASK 811
		27-21082	27-89 TASK 818
		27-21091	27-89 TASK 801
		27-21092	27-89 TASK 815
		27-21101	27-89 TASK 803
		27-21102	27-89 TASK 819
		27-21111	27-89 TASK 805
		27-21112	27-89 TASK 821

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.131
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
278 001 00	SLATS DRIVE (EICAS CAUTION)	(continued)	
		27-21121	27-89 TASK 806
		27-21122	27-89 TASK 822
		27-21131	27-89 TASK 804
		27-21132	27-89 TASK 820
		27-21141	27-89 TASK 807
		27-21142	27-89 TASK 823
		27-21151	27-89 TASK 808
		27-21152	27-89 TASK 824
		27-21281	27-81 TASK 849
		27-21282	27-81 TASK 849
278 011 00	SLATS PRIMARY FAIL (EICAS CAUTION)	27-20950	27-81 TASK 844
		27-20961	27-81 TASK 804
		27-20962	27-82 TASK 804
		27-20971	27-81 TASK 845
		27-20972	27-82 TASK 805
		27-20980	27-81 TASK 805
		27-20981	27-81 TASK 805
		27-20982	27-81 TASK 805
		27-20991	27-81 TASK 806
		27-20992	27-82 TASK 806
		27-21001	27-81 TASK 807
		27-21002	27-82 TASK 807
		27-21011	27-81 TASK 808
		27-21012	27-82 TASK 808
		27-21021	27-81 TASK 810
		27-21022	27-82 TASK 811
		27-21261	27-51 TASK 866
		27-21262	27-52 TASK 833
		NONE	27-81 TASK 810
278 012 00	SLATS SECONDARY FAIL (EICAS STATUS)	27-20151	27-81 TASK 847
		27-20152	27-82 TASK 824
		27-20191	27-81 TASK 848
		27-20192	27-82 TASK 825
		27-20741	27-81 TASK 818
		27-20742	27-82 TASK 819

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.132
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
278 012 00	SLATS SECONDARY FAIL (EICAS STATUS)	(continued)	
		27-20781	27-81 TASK 820
		27-20782	27-82 TASK 821
		27-20821	27-81 TASK 822
		27-20822	27-82 TASK 823
		27-21041	27-81 TASK 812
		27-21042	27-82 TASK 813
278 631 00	Slats, leading edge: operation is slow.		27-81 TASK 851

EFFECTIVITY
ARO ALL

27-FAULT CODE INDEX

D633W103-ARO

Page 198.133
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-10000*	Pitch Trim Channel (center) does not follow trim up command.	27-41 TASK 826
27-10001*	Pitch Trim Channel (right) does not follow trim up command.	27-41 TASK 801
27-10002*	Pitch Trim Channel (center) does not follow trim down command.	27-41 TASK 827
27-10003*	Pitch Trim Channel (right) does not follow trim down command.	27-41 TASK 802
27-10004*	Pitch Trim Channel (center) moves without command.	27-41 TASK 828
27-10005*	Pitch Trim Channel (right) moves without command.	27-41 TASK 803
27-10006*	Pitch Trim moves without command.	27-41 TASK 845
27-10007*	Stabilizer Auto Shutdown Relay (center) is not in commanded position.	27-41 TASK 829
27-10008*	Stabilizer Auto Shutdown Relay (right) is not in commanded position.	27-41 TASK 804
27-10009	STCM Shutoff Valve (center) Stabilizer Auto Shutdown Test failed.	27-41 TASK 830
27-10010	STCM Shutoff Valve (right) Stabilizer Auto Shutdown Test failed.	27-41 TASK 805
27-10013	Stabilizer Trim Control Module (center) hydraulic brake pressure switch is inoperative.	27-41 TASK 831
27-10014	Stabilizer Trim Control Module (right) hydraulic brake pressure switch is inoperative.	27-41 TASK 812
27-10015	Stabilizer Trim Control Module (center) rate solenoid operated valve is not in commanded position.	27-41 TASK 832
27-10016	Stabilizer Trim Control Module (right) rate solenoid operated valve is not in commanded position.	27-41 TASK 813
27-10017*	Stabilizer Trim Control Module (center) trim up arm solenoid operated valve is not in commanded position.	27-41 TASK 806
27-10018*	Stabilizer Trim Control Module (right) trim up arm solenoid operated valve is not in commanded position.	27-41 TASK 833
27-10019*	Stabilizer Trim Control Module (center) trim up control solenoid operated valve is not in commanded position.	27-41 TASK 834
27-10020*	Stabilizer Trim Control Module (right) trim up control solenoid operated valve is not in commanded position.	27-41 TASK 819
27-10021*	Stabilizer Trim Control Module (center) trim down arm solenoid operated valve is not in commanded position.	27-41 TASK 835
27-10022*	Stabilizer Trim Control Module (right) trim down arm solenoid operated valve is not in commanded position.	27-41 TASK 814
27-10023*	Stabilizer Trim Control Module (center) trim down control solenoid operated valve is not in commanded position.	27-41 TASK 836

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 101
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-10024*	Stabilizer Trim Control Module (right) trim down control solenoid operated valve is not in commanded position.	27-41 TASK 815
27-10025*	Pitch Trim Channel (center) does not operate because of low hydraulic pressure.	27-41 TASK 846
27-10026*	Pitch Trim Channel (right) does not operate because of low hydraulic pressure.	27-41 TASK 847
27-10100*	Elevator Power Control Unit (left inboard) does not follow command.	27-31 TASK 868
27-10101*	Elevator Power Control Unit (left outboard) does not follow command.	27-31 TASK 801
27-10102*	Elevator Power Control Unit (right inboard) does not follow command.	27-31 TASK 869
27-10103*	Elevator Power Control Unit (right outboard) does not follow command.	27-31 TASK 870
27-10104*	Elevator Power Control Unit (left inboard) bypass solenoid operated valve is not in commanded position.	27-31 TASK 830
27-10105*	Elevator Power Control Unit (left outboard) bypass solenoid operated valve is not in commanded position.	27-31 TASK 820
27-10106*	Elevator Power Control Unit (right inboard) bypass solenoid operated valve is not in commanded position.	27-31 TASK 837
27-10107*	Elevator Power Control Unit (right outboard) bypass solenoid operated valve is not in commanded position.	27-31 TASK 838
27-10108	Elevator Power Control Unit (left inboard) blocking solenoid operated valve is not in commanded position.	27-31 TASK 839
27-10109	Elevator Power Control Unit (left inboard) blocking solenoid operated valve is not in commanded position.	27-31 TASK 840
27-10110	Elevator Power Control Unit (left outboard) blocking solenoid operated valve is not in commanded position.	27-31 TASK 821
27-10111	Elevator Power Control Unit (left outboard) blocking solenoid operated valve is not in commanded position.	27-31 TASK 841
27-10112	Elevator Power Control Unit (right inboard) blocking solenoid operated valve is not in commanded position.	27-31 TASK 842
27-10113	Elevator Power Control Unit (right inboard) blocking solenoid operated valve is not in commanded position.	27-31 TASK 843
27-10114	Elevator Power Control Unit (right outboard) blocking solenoid operated valve is not in commanded position.	27-31 TASK 844
27-10115	Elevator Power Control Unit (right outboard) blocking solenoid operated valve is not in commanded position.	27-31 TASK 845
27-10116	Elevator Power Control Unit (left inboard) pressure reducer solenoid operated valve is not in commanded position.	27-31 TASK 846

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 102
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-10117	Elevator Power Control Unit (left outboard) pressure reducer solenoid operated valve is not in commanded position.	27-31 TASK 822
27-10118	Elevator Power Control Unit (right inboard) pressure reducer solenoid operated valve is not in commanded position.	27-31 TASK 847
27-10119	Elevator Power Control Unit (right outboard) pressure reducer solenoid operated valve is not in commanded position.	27-31 TASK 848
27-10120	Elevator Power Control Unit (left inboard) Actuation Confidence Test failed.	27-31 TASK 849
27-10121	Elevator Power Control Unit (left outboard) Actuation Confidence Test failed.	27-31 TASK 850
27-10122	Elevator Power Control Unit (right inboard) Actuation Confidence Test failed.	27-31 TASK 851
27-10123	Elevator Power Control Unit (right outboard) Actuation Confidence Test failed.	27-31 TASK 852
27-10124	Left Elevator Surface Actuation Confidence Test failed.	27-31 TASK 802
27-10125	Right Elevator Surface Actuation Confidence Test failed.	27-31 TASK 886
27-10128	Left Elevator Surface delta pressure signal difference is out of range.	27-31 TASK 823
27-10129	Right Elevator Surface delta pressure signal difference is out of range.	27-31 TASK 853
27-10130	Elevator Power Control Units (left) are oscillating.	27-31 TASK 824
27-10131	Elevator Power Control Units (right) are oscillating.	27-31 TASK 854
27-10200*	Aileron Power Control Unit (left inboard) does not follow command.	27-11 TASK 801
27-10201*	Aileron Power Control Unit (left outboard) does not follow command.	27-11 TASK 802
27-10202*	Aileron Power Control Unit (right inboard) does not follow command.	27-11 TASK 803
27-10203*	Aileron Power Control Unit (right outboard) does not follow command.	27-11 TASK 804
27-10204	Aileron Power Control Unit (left inboard) blocking solenoid operated valve is not in commanded position.	27-11 TASK 905
27-10205	Aileron Power Control Unit (left outboard) blocking solenoid operated valve is not in commanded position.	27-11 TASK 844
27-10206	Aileron Power Control Unit (right inboard) blocking solenoid operated valve is not in commanded position.	27-11 TASK 880
27-10207	Aileron Power Control Unit (right outboard) blocking solenoid operated valve is not in commanded position.	27-11 TASK 881
27-10208*	Aileron Power Control Unit (left inboard) bypass solenoid operated valve is not in commanded position.	27-11 TASK 860

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 103
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-10209*	Aileron Power Control Unit (left outboard) bypass solenoid operated valve is not in commanded position.	27-11 TASK 828
27-10210*	Aileron Power Control Unit (right inboard) bypass solenoid operated valve is not in commanded position.	27-11 TASK 861
27-10211*	Aileron Power Control Unit (right outboard) bypass solenoid operated valve is not in commanded position.	27-11 TASK 862
27-10212	Aileron Power Control Unit (left inboard) Actuation Confidence Test failed.	27-11 TASK 886
27-10213	Aileron Power Control Unit (left outboard) Actuation Confidence Test failed.	27-11 TASK 887
27-10214	Aileron Power Control Unit (right inboard) Actuation Confidence Test failed.	27-11 TASK 888
27-10215	Aileron Power Control Unit (right outboard) Actuation Confidence Test failed.	27-11 TASK 889
27-10216	Left Aileron Surface Actuation Confidence Test failed.	27-11 TASK 826
27-10217	Right Aileron Surface Actuation Confidence Test failed.	27-11 TASK 827
27-10218	Aileron Power Control Unit (right inboard) does not follow command.	27-11 TASK 922
27-10219	Aileron Power Control Unit (right outboard) does not follow command.	27-11 TASK 923
27-10220	Aileron Power Control Unit (left inboard) does not follow command.	27-11 TASK 924
27-10221	Aileron Power Control Unit (left outboard) does not follow command.	27-11 TASK 925
27-10222	Aileron Power Control Units (left) do not follow command.	27-11 TASK 926
27-10223	Aileron Power Control Units (right) do not follow command.	27-11 TASK 927
27-10300*	Flaperon Power Control Unit (left inboard) does not follow command.	27-11 TASK 814
27-10301*	Flaperon Power Control Unit (left outboard) does not follow command.	27-11 TASK 815
27-10302*	Flaperon Power Control Unit (right inboard) does not follow command.	27-11 TASK 816
27-10303*	Flaperon Power Control Unit (right outboard) does not follow command.	27-11 TASK 817
27-10304*	Flaperon Power Control Unit (left inboard) bypass solenoid operated valve is not in commanded position.	27-11 TASK 882
27-10305*	Flaperon Power Control Unit (left outboard) bypass solenoid operated valve is not in commanded position.	27-11 TASK 845
27-10306*	Flaperon Power Control Unit (right inboard) bypass solenoid operated valve is not in commanded position.	27-11 TASK 906

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 104
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-10307*	Flaperon Power Control Unit (right outboard) bypass solenoid operated valve is not in commanded position.	27-11 TASK 883
27-10308	Flaperon Power Control Unit (left inboard) Actuation Confidence Test failed.	27-11 TASK 856
27-10309	Flaperon Power Control Unit (left outboard) Actuation Confidence Test failed.	27-11 TASK 857
27-10310	Flaperon Power Control Unit (right inboard) Actuation Confidence Test failed.	27-11 TASK 858
27-10311	Flaperon Power Control Unit (right outboard) Actuation Confidence Test failed.	27-11 TASK 859
27-10312	Left Flaperon Surface Actuation Confidence Test failed.	27-11 TASK 805
27-10313	Right Flaperon Surface Actuation Confidence Test failed.	27-11 TASK 914
27-10314	Left Flaperon Surface delta pressure signal difference is out of range.	27-11 TASK 847
27-10315	Right Flaperon Surface delta pressure signal difference is out of range.	27-11 TASK 919
27-10316	Left Flaperon Surface delta pressure signal difference is out of range.	27-11 TASK 848
27-10317	Right Flaperon Surface delta pressure signal difference is out of range.	27-11 TASK 912
27-10400*	Rudder Power Control Unit (upper) does not follow command.	27-21 TASK 854
27-10401*	Rudder Power Control Unit (middle) does not follow command.	27-21 TASK 855
27-10402*	Rudder Power Control Unit (lower) does not follow command.	27-21 TASK 801
27-10403*	Rudder Power Control Unit (upper) bypass solenoid operated valve is not in commanded position.	27-21 TASK 848
27-10404*	Rudder Power Control Unit (middle) bypass solenoid operated valve is not in commanded position.	27-21 TASK 849
27-10405*	Rudder Power Control Unit (lower) bypass solenoid operated valve is not in commanded position.	27-21 TASK 829
27-10406	Rudder Power Control Unit (upper) damping solenoid operated valve is not in commanded position.	27-21 TASK 856
27-10407	Rudder Power Control Unit (middle) damping solenoid operated valve is not in commanded position.	27-21 TASK 857
27-10408	Rudder Power Control Unit (lower) damping solenoid operated valve is not in commanded position.	27-21 TASK 802
27-10409	Rudder Power Control Unit (upper) pressure reducer solenoid operated valve is not in commanded position.	27-21 TASK 850
27-10410	Rudder Power Control Unit (middle) pressure reducer solenoid operated valve is not in commanded position.	27-21 TASK 851

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 105
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-10411	Rudder Power Control Unit (lower) pressure reducer solenoid operated valve is not in commanded position.	27-21 TASK 830
27-10412	Rudder Power Control Unit (upper) Actuation Confidence Test failed.	27-21 TASK 839
27-10413	Rudder Power Control Unit (middle) Actuation Confidence Test failed.	27-21 TASK 861
27-10414	Rudder Power Control Unit (lower) Actuation Confidence Test failed.	27-21 TASK 862
27-10415	Rudder Surface Actuation Confidence Test failed.	27-21 TASK 803
27-10416	Rudder Surface delta pressure signal difference is out of range.	27-21 TASK 833
27-10417	Rudder Surface delta pressure signal difference is out of range.	27-21 TASK 826
27-10418	Rudder Surface Actuation Confidence Test failed at the LWR Block Test.	27-21 TASK 803
27-10419	Rudder Surface Actuation Confidence Test failed at the MID/LWR Bypass Test.	27-21 TASK 803
27-10420	Rudder Surface (upper) Actuation Confidence Test failed at the UPR-MID/LWR Bypass Test.	27-21 TASK 839
27-10421	Rudder Surface Actuation Confidence Test failed at the MID-MID/LWR Bypass Test.	27-21 TASK 861
27-10422	Rudder Surface Actuation Confidence Test failed at the LWR-MID/LWR Bypass Test.	27-21 TASK 862
27-10423	Rudder Surface Actuation Confidence Test failed at the MID/UPR Bypass Test.	27-21 TASK 803
27-10424	Rudder Surface Actuation Confidence Test failed at the UPR-MID/UPR Bypass Test.	27-21 TASK 839
27-10425	Rudder Surface Actuation Confidence Test failed at the MID-MID/UPR Bypass Test.	27-21 TASK 861
27-10426	Rudder Surface Actuation Confidence Test failed at the LWR-MID/UPR Bypass Test.	27-21 TASK 862
27-10427	Rudder Surface Actuation Confidence Test failed at the LWR/UPR Bypass Test.	27-21 TASK 803
27-10428	Rudder Surface Actuation Confidence Test failed at the UPR-LWR/UPR Bypass Test.	27-21 TASK 839
27-10429	Rudder Surface Actuation Confidence Test failed at the MID-LWR/UPR Bypass Test.	27-21 TASK 861
27-10430	Rudder Surface Actuation Confidence Test failed at the LWR-LWR/UPR Bypass Test.	27-21 TASK 862
27-10431	Rudder Surface Actuation Confidence Test failed at the UPR Block Test.	27-21 TASK 803

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 106
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-10432	Rudder Surface Actuation Confidence Test failed at the UPR-UPR Block Test.	27-21 TASK 839
27-10433	Rudder Surface Actuation Confidence Test failed at the MID-UPR Block Test.	27-21 TASK 861
27-10434	Rudder Surface Actuation Confidence Test failed at the LWR-UPR Block Test.	27-21 TASK 862
27-10435	Rudder Surface Actuation Confidence Test failed at the MID-1 Block Test.	27-21 TASK 803
27-10436	Rudder Surface Actuation Confidence Test failed at the UPR-MID-1 Block Test.	27-21 TASK 839
27-10437	Rudder Surface Actuation Confidence Test failed at the MID-MID-1 Block Test.	27-21 TASK 861
27-10438	Rudder Surface Actuation Confidence Test failed at the LWR-MID-1 Block Test.	27-21 TASK 862
27-10439	Rudder Surface Actuation Confidence Test failed at the UPR-LWR Block Test.	27-21 TASK 839
27-10440	Rudder Surface Actuation Confidence Test failed at the MID-LWR Block Test.	27-21 TASK 861
27-10441	Rudder Surface Actuation Confidence Test failed at the LWR-LWR Block Test.	27-21 TASK 862
27-10442	Rudder Surface Actuation Confidence Test failed at the MID-2 Block Test.	27-21 TASK 803
27-10443	Rudder Surface Actuation Confidence Test failed at the UPR-MID-2 Block Test.	27-21 TASK 839
27-10444	Rudder Surface Actuation Confidence Test failed at the MID-MID-2 Block Test.	27-21 TASK 861
27-10445	Rudder Surface Actuation Confidence Test failed at the LWR-MID-2 Block Test.	27-21 TASK 862
27-10446	Rudder Surface Actuation Confidence Test failed at the UPR/MID Force Fight Test.	27-21 TASK 803
27-10447	Rudder Surface Actuation Confidence Test failed at the UPR/MID HI Force Fight Test.	27-21 TASK 803
27-10448	Rudder Surface Actuation Confidence Test failed at the MID/LWR Force Fight Test.	27-21 TASK 803
27-10449	Rudder Surface Actuation Confidence Test failed at the MID/LWR HI Force Fight Test.	27-21 TASK 803
27-10450	Rudder Surface Actuation Confidence Test failed at the UPR/LWR Force Fight Test.	27-21 TASK 803
27-10451	Rudder Surface Actuation Confidence Test failed at the UPR/LWR HI Force Fight Test.	27-21 TASK 803

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 107
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-10452	Left Elevator Surface Actuation Confidence Test failed at the LIB Bypass Test.	27-31 TASK 802
27-10453	Left Elevator Surface Actuation Confidence Test failed at the LIB-LIB Bypass Test.	27-31 TASK 849
27-10454	Left Elevator Surface Actuation Confidence Test failed at the LOB-LIB Bypass Test.	27-31 TASK 850
27-10455	Left Elevator Surface Actuation Confidence Test failed at the LOB Bypass Test.	27-31 TASK 802
27-10456	Left Elevator Surface Actuation Confidence Test failed at the LIB-LOB Bypass Test.	27-31 TASK 849
27-10457	Left Elevator Surface Actuation Confidence Test failed at the LOB-LOB Bypass Test.	27-31 TASK 850
27-10458	Left Elevator Surface Actuation Confidence Test failed at the LIB Block Test.	27-31 TASK 802
27-10459	Left Elevator Surface Actuation Confidence Test failed at the LIB-LIB Block Test.	27-31 TASK 849
27-10460	Left Elevator Surface Actuation Confidence Test failed at the LOB-LIB Block Test.	27-31 TASK 850
27-10461	Left Elevator Surface Actuation Confidence Test failed at the LOB Block Test.	27-31 TASK 802
27-10462	Left Elevator Surface Actuation Confidence Test failed at the LIB-LOB Block Test.	27-31 TASK 849
27-10463	Left Elevator Surface Actuation Confidence Test failed at the LOB-LOB Block Test.	27-31 TASK 850
27-10464	Left Elevator Surface Actuation Confidence Test failed at the LIB Pressure Reducer Test.	27-31 TASK 849
27-10465	Left Elevator Surface Actuation Confidence Test failed at the LOB Pressure Reducer Test.	27-31 TASK 850
27-10466	Left Elevator Surface Actuation Confidence Test failed at the L Force Fight Test.	27-31 TASK 802
27-10467	Right Elevator Surface Actuation Confidence Test failed at the RIB Bypass Test.	27-31 TASK 886
27-10468	Right Elevator Surface Actuation Confidence Test failed at the RIB-RIB Bypass Test.	27-31 TASK 851
27-10469	Right Elevator Surface Actuation Confidence Test failed at the ROB-RIB Bypass Test.	27-31 TASK 852
27-10470	Right Elevator Surface Actuation Confidence Test failed at the ROB Bypass Test.	27-31 TASK 886
27-10471	Right Elevator Surface Actuation Confidence Test failed at the RIB-ROB Bypass Test.	27-31 TASK 851

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 108
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-10472	Right Elevator Surface Actuation Confidence Test failed at the ROB-ROB Bypass Test.	27-31 TASK 852
27-10473	Right Elevator Surface Actuation Confidence Test failed at the RIB Block Test.	27-31 TASK 886
27-10474	Right Elevator Surface Actuation Confidence Test failed at the RIB-RIB Block Test.	27-31 TASK 851
27-10475	Right Elevator Surface Actuation Confidence Test failed at the ROB-RIB Block Test.	27-31 TASK 852
27-10476	Right Elevator Surface Actuation Confidence Test failed at the ROB Block Test.	27-31 TASK 886
27-10477	Right Elevator Surface Actuation Confidence Test failed at the RIB-ROB Block Test.	27-31 TASK 851
27-10478	Right Elevator Surface Actuation Confidence Test failed at the ROB-ROB Block Test.	27-31 TASK 852
27-10479	Right Elevator Surface Actuation Confidence Test failed at the RIB Pressure Reducer Test.	27-31 TASK 851
27-10480	Right Elevator Surface Actuation Confidence Test failed at the ROB Pressure Reducer Test.	27-31 TASK 852
27-10481	Right Elevator Surface Actuation Confidence Test failed at the R Force Fight Test.	27-31 TASK 886
27-10482	Left Flaperon Surface Actuation Confidence Test failed at the LIB Bypass Test.	27-11 TASK 805
27-10483	Left Flaperon Surface Actuation Confidence Test failed at the LIB-LIB Bypass Test.	27-11 TASK 856
27-10484	Left Flaperon Surface Actuation Confidence Test failed at the LOB-LIB Bypass Test.	27-11 TASK 857
27-10485	Left Flaperon Surface Actuation Confidence Test failed at the LOB Bypass Test.	27-11 TASK 805
27-10486	Left Flaperon Surface Actuation Confidence Test failed at the LIB-LOB Bypass Test.	27-11 TASK 856
27-10487	Left Flaperon Surface Actuation Confidence Test failed at the LOB-LOB Bypass Test.	27-11 TASK 857
27-10488	Left Flaperon Surface Actuation Confidence Test failed at the L Force Fight Test.	27-11 TASK 805
27-10489	Right Flaperon Surface Actuation Confidence Test failed at the RIB Bypass Test.	27-11 TASK 914
27-10490	Right Flaperon Surface Actuation Confidence Test failed at the RIB-RIB Bypass Test.	27-11 TASK 858
27-10491	Right Flaperon Surface Actuation Confidence Test failed at the ROB-RIB Bypass Test.	27-11 TASK 859

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 109
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-10492	Right Flaperon Surface Actuation Confidence Test failed at the ROB Bypass Test.	27-11 TASK 914
27-10493	Right Flaperon Surface Actuation Confidence Test failed at the RIB-ROB Bypass Test.	27-11 TASK 858
27-10494	Right Flaperon Surface Actuation Confidence Test failed at the ROB-ROB Bypass Test.	27-11 TASK 859
27-10495	Right Flaperon Surface Actuation Confidence Test failed at the R Force Fight Test.	27-11 TASK 914
27-10500*	Spoiler Power Control Unit (1) does not follow command.	27-61 TASK 801
27-10501*	Spoiler Power Control Unit (2) does not follow command.	27-61 TASK 802
27-10502*	Spoiler Power Control Unit (3) does not follow command.	27-61 TASK 803
27-10503*	Spoiler Power Control Unit (4) does not follow command.	27-61 TASK 841
27-10504*	Spoiler Power Control Unit (5) does not follow command.	27-61 TASK 804
27-10505*	Spoiler Power Control Unit (6) does not follow command.	27-61 TASK 805
27-10506*	Spoiler Power Control Unit (7) does not follow command.	27-61 TASK 806
27-10507*	Spoiler Power Control Unit (8) does not follow command.	27-61 TASK 807
27-10508*	Spoiler Power Control Unit (9) does not follow command.	27-61 TASK 808
27-10509*	Spoiler Power Control Unit (10) does not follow command.	27-61 TASK 809
27-10510*	Spoiler Power Control Unit (11) does not follow command.	27-61 TASK 810
27-10511*	Spoiler Power Control Unit (12) does not follow command.	27-61 TASK 811
27-10512*	Spoiler Power Control Unit (13) does not follow command.	27-61 TASK 812
27-10513*	Spoiler Power Control Unit (14) does not follow command.	27-61 TASK 813
27-10514	Spoiler Power Control Unit (4) or (11) solenoid operated valve is not in commanded position.	27-61 TASK 828
27-10600	Auto Speedbrake Actuator is not in commanded position.	27-62 TASK 801
27-10601	Auto Speedbrake Relay (arm) is not in commanded position.	27-62 TASK 802
27-10602	Auto Speedbrake Relay (control) is not in commanded position.	27-62 TASK 805
27-10700*	Elevator Feel Actuator (left) does not follow command.	27-31 TASK 825
27-10701*	Elevator Feel Actuator (right) does not follow command.	27-31 TASK 831
27-10702*	Elevator Feel Actuator (left) position transducer has feedback fault.	27-31 TASK 803
27-10703*	Elevator Feel Actuator (right) position transducer has feedback fault.	27-31 TASK 812
27-10800	Rudder Trim Actuator does not follow command.	27-21 TASK 804
27-10801	Rudder Trim Actuator does not follow engage command.	27-21 TASK 832
27-10802*	Rudder Trim Actuator position transducer has feedback fault.	27-21 TASK 805

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 110
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-10803	Aileron/Rudder Trim Module rudder trim switch is inoperative.	27-21 TASK 869
27-10804	EDIU (Left) Thrust signals do not agree.	27-21 TASK 870
27-10805	EDIU (Right) Thrust signals do not agree.	27-21 TASK 871
27-10806	Aileron/Rudder Trim Module manual trim cancel switch is inoperative.	27-21 TASK 806
27-10807	Thrust Asym Comp switch is invalid.	27-21 TASK 868
27-11000	Stabilizer Position Module (left) position transducer has feedback fault.	27-41 TASK 807
27-11001	Stabilizer Position Module (center) position transducer has feedback fault.	27-41 TASK 810
27-11002	Stabilizer Position Module (right) position transducer has feedback fault.	27-41 TASK 811
27-11003	Stabilizer Position Module (left) transducer position signal does not agree with the same signals from Stabilizer Position Module (center) and Stabilizer Position Module (right).	27-41 TASK 820
27-11004	Stabilizer Position Module (center) transducer position signal does not agree with the same signals from Stabilizer Position Module (left) and Stabilizer Position Module (right).	27-41 TASK 837
27-11005	Stabilizer Position Module (right) transducer position signal does not agree with the same signals from Stabilizer Position Module (left) and Stabilizer Position Module (center).	27-41 TASK 838
27-11006	Stabilizer Position Modules have multiple faults.	27-41 TASK 808
27-11100*	Elevator Power Control Unit (left inboard) ram transducer has feedback fault.	27-31 TASK 855
27-11101*	Elevator Power Control Unit (left outboard) ram transducer has feedback fault.	27-31 TASK 826
27-11102*	Elevator Power Control Unit (right inboard) ram transducer has feedback fault.	27-31 TASK 856
27-11103*	Elevator Power Control Unit (right outboard) ram transducer has feedback fault.	27-31 TASK 857
27-11104	Ram transducer position signals from Elevator Power Control Unit (left inboard) and Elevator Power Control Unit (left outboard) do not agree.	27-31 TASK 832
27-11105	Ram transducer position signals from Elevator Power Control Unit (right inboard) and Elevator Power Control Unit (right outboard) do not agree.	27-31 TASK 833
27-11106*	Elevator Power Control Unit (left inboard) EHSV transducer has feedback fault.	27-31 TASK 813
27-11107*	Elevator Power Control Unit (left outboard) EHSV transducer has feedback fault.	27-31 TASK 804

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 111
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-11108*	Elevator Power Control Unit (right inboard) EHSV transducer has feedback fault.	27-31 TASK 814
27-11109*	Elevator Power Control Unit (right outboard) EHSV transducer has feedback fault.	27-31 TASK 815
27-11110	Elevator Power Control Unit (left inboard) delta pressure transducer has feedback fault.	27-31 TASK 871
27-11111	Elevator Power Control Unit (left outboard) delta pressure transducer has feedback fault.	27-31 TASK 805
27-11112	Elevator Power Control Unit (right inboard) delta pressure transducer has feedback fault.	27-31 TASK 872
27-11113	Elevator Power Control Unit (right outboard) delta pressure transducer has feedback fault.	27-31 TASK 873
27-11114*	Elevator Power Control Unit (left inboard) has multiple transducer faults.	27-31 TASK 887
27-11115*	Elevator Power Control Unit (left outboard) has multiple transducer faults.	27-31 TASK 806
27-11116*	Elevator Power Control Unit (right inboard) has multiple transducer faults.	27-31 TASK 888
27-11117	Elevator Power Control Unit (right outboard) has multiple transducer faults.	27-31 TASK 889
27-11200*	Aileron Power Control Unit (left inboard) ram transducer has feedback fault.	27-11 TASK 806
27-11201*	Aileron Power Control Unit (left outboard) ram transducer has feedback fault.	27-11 TASK 807
27-11202*	Aileron Power Control Unit (right inboard) ram transducer has feedback fault.	27-11 TASK 808
27-11203*	Aileron Power Control Unit (right outboard) ram transducer has feedback fault.	27-11 TASK 809
27-11204	Ram transducer position signals from Aileron Power Control Unit (left inboard) and Aileron Power Control Unit (left outboard) do not agree.	27-11 TASK 830
27-11205	Ram transducer position signals from Aileron Power Control Unit (right inboard) and Aileron Power Control Unit (right outboard) do not agree.	27-11 TASK 866
27-11206*	Aileron Power Control Unit (left inboard) EHSV transducer has feedback fault.	27-11 TASK 810
27-11207*	Aileron Power Control Unit (left outboard) EHSV transducer has feedback fault.	27-11 TASK 811
27-11208*	Aileron Power Control Unit (right inboard) EHSV transducer has feedback fault.	27-11 TASK 812

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 112
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-11209*	Aileron Power Control Unit (right outboard) EHSV transducer has feedback fault.	27-11 TASK 813
27-11210*	Aileron Power Control Unit (left inboard) has multiple transducer faults.	27-11 TASK 868
27-11211*	Aileron Power Control Unit (left outboard) has multiple transducer faults.	27-11 TASK 832
27-11212*	Aileron Power Control Unit (right inboard) has multiple transducer faults.	27-11 TASK 869
27-11213*	Aileron Power Control Unit (right outboard) has multiple transducer faults.	27-11 TASK 870
27-11300*	Flaperon Power Control Unit (left inboard) ram transducer has feedback fault.	27-11 TASK 818
27-11301*	Flaperon Power Control Unit (left outboard) ram transducer has feedback fault.	27-11 TASK 819
27-11302*	Flaperon Power Control Unit (right inboard) ram transducer has feedback fault.	27-11 TASK 820
27-11303*	Flaperon Power Control Unit (right outboard) ram transducer has feedback fault.	27-11 TASK 821
27-11304	Ram transducer position signals from Flaperon Power Control Unit (left inboard) and Flaperon Power Control Unit (left outboard) do not agree.	27-11 TASK 831
27-11305	Ram transducer position signals from Flaperon Power Control Unit (right inboard) and Flaperon Power Control Unit (right outboard) do not agree.	27-11 TASK 867
27-11306*	Flaperon Power Control Unit (left inboard) EHSV transducer has feedback fault.	27-11 TASK 822
27-11307*	Flaperon Power Control Unit (left outboard) EHSV transducer has feedback fault.	27-11 TASK 823
27-11308*	Flaperon Power Control Unit (right inboard) EHSV transducer has feedback fault.	27-11 TASK 824
27-11309*	Flaperon Power Control Unit (right outboard) EHSV transducer has feedback fault.	27-11 TASK 825
27-11310	Flaperon Power Control Unit (left inboard) delta pressure transducer has feedback fault.	27-11 TASK 863
27-11311	Flaperon Power Control Unit (left outboard) delta pressure transducer has feedback fault.	27-11 TASK 829
27-11312	Flaperon Power Control Unit (right inboard) delta pressure transducer has feedback fault.	27-11 TASK 864
27-11313	Flaperon Power Control Unit (right outboard) delta pressure transducer has feedback fault.	27-11 TASK 865

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 113
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-11314*	Flaperon Power Control Unit (left inboard) has multiple transducer faults.	27-11 TASK 871
27-11315*	Flaperon Power Control Unit (left outboard) has multiple transducer faults.	27-11 TASK 833
27-11316*	Flaperon Power Control Unit (right inboard) has multiple transducer faults.	27-11 TASK 872
27-11317*	Flaperon Power Control Unit (right outboard) has multiple transducer faults.	27-11 TASK 873
27-11400*	Rudder Power Control Unit (upper) ram transducer has feedback fault.	27-21 TASK 818
27-11401*	Rudder Power Control Unit (middle) ram transducer has feedback fault.	27-21 TASK 819
27-11402*	Rudder Power Control Unit (lower) ram transducer has feedback fault.	27-21 TASK 807
27-11403*	Rudder Power Control Unit (upper) Ram transducer position signal does not agree with the RAM transducer position signal from Rudder Power Control Unit (middle) and Rudder Power Control Unit (lower).	27-21 TASK 820
27-11404*	Rudder Power Control Unit (middle) Ram transducer position signal does not agree with the RAM transducer position signal from Rudder Power Control Unit (upper) and Rudder Power Control Unit (lower).	27-21 TASK 821
27-11405*	Rudder Power Control Unit (lower) Ram transducer position signal does not agree with the RAM transducer position signal from Rudder Power Control Unit (upper) and Rudder Power Control Unit (middle).	27-21 TASK 808
27-11406*	Rudder Power Control Units have multiple faults.	27-21 TASK 809
27-11407*	Rudder Power Control Unit (upper) EHSV transducer has feedback fault.	27-21 TASK 822
27-11408*	Rudder Power Control Unit (middle) EHSV transducer has feedback fault.	27-21 TASK 823
27-11409*	Rudder Power Control Unit (lower) EHSV transducer has feedback fault.	27-21 TASK 810
27-11410	Rudder Power Control Unit (upper) delta pressure transducer has feedback fault.	27-21 TASK 863
27-11411	Rudder Power Control Unit (middle) delta pressure transducer has feedback fault.	27-21 TASK 864
27-11412	Rudder Power Control Unit (lower) delta pressure transducer has feedback fault.	27-21 TASK 811
27-11413*	Rudder Power Control Unit (upper) has multiple transducer faults.	27-21 TASK 824

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 114
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-11414*	Rudder Power Control Unit (middle) has multiple transducer faults.	27-21 TASK 825
27-11415*	Rudder Power Control Unit (lower) has multiple transducer faults.	27-21 TASK 812
27-11416*	Rudder Trim Position Signals from Rudder Trim Actuator and Rudder Trim Position Transducer do not agree.	27-21 TASK 840
27-11500*	Spoiler Power Control Unit (1) position transducer has feedback fault.	27-61 TASK 814
27-11501*	Spoiler Power Control Unit (2) position transducer has feedback fault.	27-61 TASK 819
27-11502*	Spoiler Power Control Unit (3) position transducer has feedback fault.	27-61 TASK 820
27-11503	Spoiler Power Control Unit (4) position transducer has feedback fault.	27-61 TASK 821
27-11504*	Spoiler Power Control Unit (5) position transducer has feedback fault.	27-61 TASK 822
27-11505*	Spoiler Power Control Unit (6) position transducer has feedback fault.	27-61 TASK 823
27-11506*	Spoiler Power Control Unit (7) position transducer has feedback fault.	27-61 TASK 824
27-11507*	Spoiler Power Control Unit (8) position transducer has feedback fault.	27-61 TASK 825
27-11508*	Spoiler Power Control Unit (9) position transducer has feedback fault.	27-61 TASK 826
27-11509*	Spoiler Power Control Unit (10) position transducer has feedback fault.	27-61 TASK 827
27-11510	Spoiler Power Control Unit (11) position transducer has feedback fault.	27-61 TASK 815
27-11511*	Spoiler Power Control Unit (12) position transducer has feedback fault.	27-61 TASK 832
27-11512*	Spoiler Power Control Unit (13) position transducer has feedback fault.	27-61 TASK 833
27-11513*	Spoiler Power Control Unit (14) position transducer has feedback fault.	27-61 TASK 834
27-12000	Wheel Position Transducer (left 1) has feedback fault.	27-11 TASK 846
27-12001	Wheel Position Transducer (left 2) has feedback fault.	27-11 TASK 907
27-12002	Wheel Position Transducer (left 3) has feedback fault.	27-11 TASK 908
27-12003	Wheel Position Transducer (left 1) position signal does not agree with the position signal from Wheel Position Transducer (left 2) and Wheel Position Transducer (left 3).	27-11 TASK 834

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 115
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-12004	Wheel Position Transducer (left 2) position signal does not agree with the position signal from Wheel Position Transducer (left 1) and Wheel Position Transducer (left 3).	27-11 TASK 890
27-12005	Wheel Position Transducer (left 3) position signal does not agree with the position signal from Wheel Position Transducer (left 1) and Wheel Position Transducer (left 2).	27-11 TASK 891
27-12006	Wheel Position Transducers (left) have multiple faults.	27-11 TASK 843
27-12007	Wheel Position Transducer (right 1) has feedback fault.	27-11 TASK 909
27-12008	Wheel Position Transducer (right 2) has feedback fault.	27-11 TASK 910
27-12009	Wheel Position Transducer (right 3) has feedback fault.	27-11 TASK 911
27-12010	Wheel Position Transducer (right 1) position signal does not agree with the position signal from Wheel Position Transducer (right 2) and Wheel Position Transducer (right 3).	27-11 TASK 849
27-12011	Wheel Position Transducer (right 2) position signal does not agree with the position signal from Wheel Position Transducer (right 1) and Wheel Position Transducer (right 3).	27-11 TASK 850
27-12012	Wheel Position Transducer (right 3) position signal does not agree with the position signal from Wheel Position Transducer (right 1) and Wheel Position Transducer (right 2).	27-11 TASK 884
27-12013	Wheel Position Transducers (right) have multiple faults.	27-11 TASK 843
27-12014	Wheel position signals from Wheel Position Transducers (left) and Wheel Position Transducers (right) do not agree.	27-11 TASK 835
27-12100	Column Position Transducer (left 1) has feedback fault.	27-31 TASK 807
27-12101	Column Position Transducer (left 2) has feedback fault.	27-31 TASK 816
27-12102	Column Position Transducer (left 3) has feedback fault.	27-31 TASK 817
27-12103	Column Position Transducer (left 1) position signal does not agree with the position signal from Column Position Transducer (left 2) and Column Position Transducer (left 3).	27-31 TASK 808
27-12104	Column Position Transducer (left 2) position signal does not agree with the position signal from Column Position Transducer (left 1) and Column Position Transducer (left 3).	27-31 TASK 818
27-12105	Column Position Transducer (left 3) position signal does not agree with the position signal from Column Position Transducer (left 1) and Column Position Transducer (left 2).	27-31 TASK 819
27-12106	Column Position Transducers (left) have multiple faults.	27-31 TASK 809
27-12107	Column Position Transducer (right 1) has feedback fault.	27-31 TASK 858
27-12108	Column Position Transducer (right 2) has feedback fault.	27-31 TASK 859
27-12109	Column Position Transducer (right 3) has feedback fault.	27-31 TASK 860

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 116
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-12110	Column Position Transducer (right 1) position signal does not agree with the position signal from Column Position Transducer (right 2) and Column Position Transducer (right 3).	27-31 TASK 861
27-12111	Column Position Transducer (right 2) position signal does not agree with the position signal from Column Position Transducer (right 1) and Column Position Transducer (right 3).	27-31 TASK 862
27-12112	Column Position Transducer (right 3) position signal does not agree with the position signal from Column Position Transducer (right 1) and Column Position Transducer (right 2).	27-31 TASK 863
27-12113	Column Position Transducers (right) have multiple faults.	27-31 TASK 809
27-12114	Column position signals from Column Position Transducers (left) and Column Position Transducers (right) do not agree.	27-31 TASK 810
27-12200	Pedal Position Transducer (left 1) has feedback fault.	27-21 TASK 813
27-12201	Pedal Position Transducer (left 2) has feedback fault.	27-21 TASK 858
27-12202	Pedal Position Transducer (right 1) has feedback fault.	27-21 TASK 859
27-12203	Pedal Position Transducer (right 2) has feedback fault.	27-21 TASK 860
27-12204	Pedal position signals from Pedal Position Transducer (left 1) and Pedal Position Transducer (left 2) do not agree.	27-21 TASK 814
27-12205	Pedal position signals from Pedal Position Transducer (right 1) and Pedal Position Transducer (right 2) do not agree.	27-21 TASK 814
27-12206	Pedal position signals from Pedal Position Transducers (left) and Pedal Position Transducers (right) do not agree.	27-21 TASK 865
27-12300	Speedbrake Lever Transducer Assembly #1 position transducer has feedback fault.	27-61 TASK 816
27-12301	Speedbrake Lever Transducer Assembly #2 position transducer has feedback fault.	27-61 TASK 835
27-12302	Speedbrake Lever Transducer Assembly #3 position transducer has feedback fault.	27-61 TASK 836
27-12303	Speedbrake Lever Transducer Assembly #4 position transducer has feedback fault.	27-61 TASK 837
27-12304	#1 transducer position signal from Speedbrake Lever Transducer Assembly and all other transducer position signals do not agree.	27-61 TASK 817
27-12305	#2 transducer position signal from Speedbrake Lever Transducer Assembly and all other transducer position signals do not agree.	27-61 TASK 838
27-12306	#3 transducer position signal from Speedbrake Lever Transducer Assembly and all other transducer position signals do not agree.	27-61 TASK 839

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 117
May 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-12307	#4 transducer position signal from Speedbrake Lever Transducer Assembly and all other transducer position signals do not agree.	27-61 TASK 840
27-12308	Speedbrake Lever Transducer Assembly has multiple transducer faults.	27-61 TASK 818
27-12400	Pitch Trim Switch (left) nose up switches do not agree.	27-41 TASK 809
27-12401	Pitch Trim Switch (left) nose dn switches do not agree.	27-41 TASK 839
27-12402	Pitch Trim Switch (right) nose up switches do not agree.	27-41 TASK 840
27-12403	Pitch Trim Switch (right) nose dn switches do not agree.	27-41 TASK 841
27-12404	Pitch Trim Switch (left) is failed.	27-41 TASK 816
27-12405	Pitch Trim Switch (right) is failed.	27-41 TASK 842
27-12500	Wheel Force Transducer Assembly #1 transducer has feedback fault.	27-11 TASK 851
27-12501	Wheel Force Transducer Assembly #2 transducer has feedback fault.	27-11 TASK 897
27-12502	Wheel force signals from Wheel Force Transducer Assembly 1 and Wheel Force Transducer Assembly 2 do not agree.	27-11 TASK 838
27-12600	Column Force Transducer (left) #1 transducer has feedback fault.	27-31 TASK 834
27-12601	Column Force Transducer (left) #2 transducer has feedback fault.	27-31 TASK 877
27-12602	Column Force Transducer (left) Column force signals do not agree.	27-31 TASK 827
27-12603	Column Force Transducer (right) #1 transducer has feedback fault.	27-31 TASK 878
27-12604	Column Force Transducer (right) #2 transducer has feedback fault.	27-31 TASK 879
27-12605	AIMS-2, CMCF LDI 3114-BCG-00W-16; Column Force Transducer (right) Column force signals do not agree. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Column Force Transducer (right) column force signals do not agree.	27-31 TASK 827
27-13000*	Actuator Control Electronics (left 1) has an internal fault.	27-02 TASK 880
27-13001*	Actuator Control Electronics (left 2) has an internal fault.	27-02 TASK 881
27-13002*	Actuator Control Electronics (center) has an internal fault.	27-02 TASK 808
27-13003*	Actuator Control Electronics (right) has an internal fault.	27-02 TASK 809

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 118
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-13004	Actuator Control Electronics (left 1) Actuator Control Electronics Monitor Test failed.	27-02 TASK 882
27-13005	Actuator Control Electronics (left 2) Actuator Control Electronics Monitor Test failed.	27-02 TASK 883
27-13006	Actuator Control Electronics (center) Actuator Control Electronics Monitor Test failed.	27-02 TASK 884
27-13007	Actuator Control Electronics (right) Actuator Control Electronics Monitor Test failed.	27-02 TASK 885
27-13008*	Actuator Control Electronics (left 1) has a fault.	27-02 TASK 807
27-13009*	Actuator Control Electronics (left 2) has a fault.	27-02 TASK 877
27-13010*	Actuator Control Electronics (center) has a fault.	27-02 TASK 878
27-13011*	Actuator Control Electronics (right) has a fault.	27-02 TASK 879
27-13012*	Multiple transducers have feedback faults.	27-02 TASK 821
27-13013*	Multiple transducers have feedback faults.	27-02 TASK 822
27-13014*	Multiple transducers have feedback faults.	27-02 TASK 823
27-13015*	Multiple transducers have feedback faults.	27-02 TASK 824
27-13016*	Multiple transducers have feedback faults.	27-02 TASK 817
27-13017	Multiple transducers have feedback faults.	27-02 TASK 825
27-13018*	Multiple transducers have feedback faults.	27-02 TASK 826
27-13019*	Multiple transducers have feedback faults.	27-02 TASK 827
27-13020*	Multiple transducers have feedback faults.	27-02 TASK 818
27-13021*	Multiple transducers have feedback faults.	27-02 TASK 828
27-13022*	Multiple transducers have feedback faults.	27-02 TASK 829
27-13023*	Multiple transducers have feedback faults.	27-02 TASK 830
27-13024*	Multiple transducers have feedback faults.	27-02 TASK 831
27-13025*	Multiple transducers have feedback faults.	27-02 TASK 819
27-13026*	Multiple transducers have feedback faults.	27-02 TASK 832
27-13027*	Multiple transducers have feedback faults.	27-02 TASK 833
27-13028*	Multiple transducers have feedback faults.	27-02 TASK 834
27-13029*	Multiple transducers have feedback faults.	27-02 TASK 820
27-13030*	Multiple transducers have feedback faults.	27-02 TASK 835
27-13031*	Multiple transducers have feedback faults.	27-02 TASK 836
27-13032	Actuator Control Electronics (left 1) Flaps retracted discrete from FSEU (1) does not agree with majority.	27-02 TASK 801
27-13033	Actuator Control Electronics (left 2) Flaps retracted discrete from FSEU (1) does not agree with majority.	27-02 TASK 837

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 119
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-13034	Actuator Control Electronics (center) Flaps retracted discrete from FSEU (1) does not agree with majority.	27-02 TASK 838
27-13035	Actuator Control Electronics (right) Flaps retracted discrete from FSEU (1) does not agree with majority.	27-02 TASK 839
27-13036	Actuator Control Electronics (left 1) Flaps retracted discrete from FSEU (2) does not agree with majority.	27-02 TASK 840
27-13037	Actuator Control Electronics (left 2) Flaps retracted discrete from FSEU (2) does not agree with majority.	27-02 TASK 841
27-13038	Actuator Control Electronics (center) Flaps retracted discrete from FSEU (2) does not agree with majority.	27-02 TASK 842
27-13039	Actuator Control Electronics (right) Flaps retracted discrete from FSEU (2) does not agree with majority.	27-02 TASK 843
27-13040	Flaps retracted discrete signals from Flap/Slat Electronics Unit (1) and Flap/Slat Electronics Unit (2) do not agree.	27-02 TASK 844
27-13041	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Actuator Control Electronics (left 1) mode signal from PFCs DISC switch does not agree with majority. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (left 1) mode signal from PFCs DISC switch is invalid or does not agree with majority.	27-02 TASK 845
27-13042	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Actuator Control Electronics (left 2) mode signal from PFCs DISC switch does not agree with majority. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (left 2) mode signal from PFCs DISC switch is invalid or does not agree with majority.	27-02 TASK 846
27-13043	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Actuator Control Electronics (center) mode signal from PFCs DISC switch does not agree with majority. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (center) mode signal from PFCs DISC switch is invalid or does not agree with majority.	27-02 TASK 847

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 120
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-13044	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Actuator Control Electronics (right) mode signal from PFCs DISC switch does not agree with majority. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (right) mode signal from PFCs DISC switch is invalid or does not agree with majority.	27-02 TASK 848
27-13046*	Actuator Control Electronics (left 1) has no output on Flight Controls ARINC 629 Bus (left).	27-02 TASK 805
27-13047*	Actuator Control Electronics (left 2) has no output on Flight Controls ARINC 629 Bus (left).	27-02 TASK 862
27-13048*	Actuator Control Electronics (center) has no output on Flight Controls ARINC 629 Bus (center).	27-02 TASK 863
27-13049*	Actuator Control Electronics (right) has no output on Flight Controls ARINC 629 Bus (right).	27-02 TASK 864
27-13050*	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics (left 1) has no input from Any LRU on Flight Controls ARINC 629 Bus (left). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (left 1) has no input from any LRU on Flight Controls ARINC 629 Bus (left).	27-02 TASK 865
27-13051	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics (left 1) has no input from Any LRU on Flight Controls ARINC 629 Bus (center). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (left 1) has no input from any LRU on Flight Controls ARINC 629 Bus (center).	27-02 TASK 866
27-13052	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics (left 1) has no input from Any LRU on Flight Controls ARINC 629 Bus (right). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (left 1) has no input from any LRU on Flight Controls ARINC 629 Bus (right).	27-02 TASK 867

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 121
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-13053*	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics (left 2) has no input from Any LRU on Flight Controls ARINC 629 Bus (left). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (left 2) has no input from any LRU on Flight Controls ARINC 629 Bus (left).	27-02 TASK 868
27-13054	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics (left 2) has no input from Any LRU on Flight Controls ARINC 629 Bus (center). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (left 2) has no input from any LRU on Flight Controls ARINC 629 Bus (center).	27-02 TASK 869
27-13055	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics (left 2) has no input from Any LRU on Flight Controls ARINC 629 Bus (right). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (left 2) has no input from any LRU on Flight Controls ARINC 629 Bus (right).	27-02 TASK 870
27-13056	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics (center) has no input from Any LRU on Flight Controls ARINC 629 Bus (left). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (center) has no input from any LRU on Flight Controls ARINC 629 Bus (left).	27-02 TASK 871
27-13057*	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics (center) has no input from Any LRU on Flight Controls ARINC 629 Bus (center). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (center) has no input from any LRU on Flight Controls ARINC 629 Bus (center).	27-02 TASK 872

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 122
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-13058	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics (center) has no input from Any LRU on Flight Controls ARINC 629 Bus (right). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (center) has no input from any LRU on Flight Controls ARINC 629 Bus (right).	27-02 TASK 873
27-13059	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics (right) has no input from Any LRU on Flight Controls ARINC 629 Bus (left). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (right) has no input from any LRU on Flight Controls ARINC 629 Bus (left).	27-02 TASK 874
27-13060	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics (right) has no input from Any LRU on Flight Controls ARINC 629 Bus (center). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (right) has no input from any LRU on Flight Controls ARINC 629 Bus (center).	27-02 TASK 875
27-13061*	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics (right) has no input from Any LRU on Flight Controls ARINC 629 Bus (right). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics (right) has no input from any LRU on Flight Controls ARINC 629 Bus (right).	27-02 TASK 876
27-13062	Actuator Control Electronics (left 1) Actuator Confidence Test failed.	27-02 TASK 931
27-13063	Actuator Control Electronics (left 2) Actuator Confidence Test failed.	27-02 TASK 932
27-13064	Actuator Control Electronics (center) Actuator Confidence Test failed.	27-02 TASK 933
27-13065	Actuator Control Electronics (right) Actuator Confidence Test failed.	27-02 TASK 934

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 123
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-13066*	Actuator Control Electronics (left 1) has incorrect configuration.	27-02 TASK A22
27-13067*	Actuator Control Electronics (left 2) has incorrect configuration.	27-02 TASK A23
27-13068*	Actuator Control Electronics (center) has incorrect configuration.	27-02 TASK A24
27-13069*	Actuator Control Electronics (right) has incorrect configuration.	27-02 TASK A25
27-13070*	Pitch Rate Transducer (left 1) signal is invalid or does not agree with other Pitch Rate Transducer signals.	27-31 TASK 899
27-13071*	Pitch Rate Transducer (left 2) signal is invalid or does not agree with other Pitch Rate Transducer signals.	27-31 TASK 900
27-13072*	Pitch Rate Transducer (right 2) signal is invalid or does not agree with other Pitch Rate Transducer signals.	27-31 TASK 901
27-13073*	Pitch Rate Transducer (right 1) signal is invalid or does not agree with other Pitch Rate Transducer signals.	27-31 TASK 902
27-13074*	Multiple Pitch Rate Transducers have faults.	27-31 TASK 903
27-14000	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Primary Flight Computer (left) lane 1 has a fault. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary Flight Computer (left) lane 1 has an internal or interface fault.	27-02 TASK 812
27-14001	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Primary Flight Computer (left) lane 2 has a fault. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary Flight Computer (left) lane 2 has an internal or interface fault.	27-02 TASK 886
27-14002	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Primary Flight Computer (left) lane 3 has a fault. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary Flight Computer (left) lane 3 has an internal or interface fault.	27-02 TASK 887
27-14003	Primary Flight Computer (left) lane 1 has an ARINC 629 fault.	27-02 TASK 804
27-14004	Primary Flight Computer (left) lane 2 has an ARINC 629 fault.	27-02 TASK 860
27-14005	Primary Flight Computer (left) lane 3 has an ARINC 629 fault.	27-02 TASK 861

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 124
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-14006	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Primary Flight Computer (center) lane 1 has a fault. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary Flight Computer (center) lane 1 has an internal or interface fault.	27-02 TASK 935
27-14007	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Primary Flight Computer (center) lane 2 has a fault. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary Flight Computer (center) lane 2 has an internal or interface fault.	27-02 TASK 936
27-14008	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Primary Flight Computer (center) lane 3 has a fault. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary Flight Computer (center) lane 3 has an internal or interface fault.	27-02 TASK 937
27-14009	Primary Flight Computer (center) lane 1 has an ARINC 629 fault.	27-02 TASK 925
27-14010	Primary Flight Computer (center) lane 2 has an ARINC 629 fault.	27-02 TASK 926
27-14011	Primary Flight Computer (center) lane 3 has an ARINC 629 fault.	27-02 TASK 927
27-14012	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Primary Flight Computer (right) lane 1 has a fault. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary Flight Computer (right) lane 1 has an internal or interface fault.	27-02 TASK 938

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 125
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-14013	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Primary Flight Computer (right) lane 2 has a fault. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary Flight Computer (right) lane 2 has an internal or interface fault.	27-02 TASK 939
27-14014	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; Primary Flight Computer (right) lane 3 has a fault. AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3114-BCG-00W-16; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary Flight Computer (right) lane 3 has an internal or interface fault.	27-02 TASK 940
27-14015	Primary Flight Computer (right) lane 1 has an ARINC 629 fault.	27-02 TASK 928
27-14016	Primary Flight Computer (right) lane 2 has an ARINC 629 fault.	27-02 TASK 929
27-14017	Primary Flight Computer (right) lane 3 has an ARINC 629 fault.	27-02 TASK 930
27-14018*	Primary Flight Computer (left) is inoperative.	27-02 TASK 813
27-14019*	Primary Flight Computer (center) is inoperative.	27-02 TASK 941
27-14020*	Primary Flight Computer (right) is inoperative.	27-02 TASK 942
27-14024*	Primary Flight Computers are incompatible.	27-02 TASK 806
27-14025*	Primary Flight Computer (left) signals are invalid.	27-02 TASK 943
27-14026*	Primary Flight Computer (center) signals are invalid.	27-02 TASK 944
27-14027*	Primary Flight Computer (right) signals are invalid.	27-02 TASK 945
27-14030*	Primary Flight Computer (left, center, or right) has an internal fault.	27-02 TASK 905
27-14031*	Primary Flight Computer (left) has an internal fault.	27-02 TASK 906
27-14032*	Primary Flight Computer (center) has an internal fault.	27-02 TASK 907
27-14033*	Primary Flight Computer (right) has an internal fault.	27-02 TASK 908
27-14034	Primary Flight Computers Self Test failed.	27-02 TASK 988
27-14044	Primary Flight Computer (center) lane 1 has an ARINC 629 fault on Flight Controls Bus (center).	27-02 TASK 992
27-14045	Primary Flight Computer (center) lane 1 has an ARINC 629 fault on Flight Controls Bus (left).	27-02 TASK 993
27-14046	Primary Flight Computer (center) lane 1 has an ARINC 629 fault on Flight Controls Bus (right).	27-02 TASK 994

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 126
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-14047	Primary Flight Computer (center) lane 2 has an ARINC 629 fault on Flight Controls Bus (center).	27-02 TASK 995
27-14048	Primary Flight Computer (center) lane 2 has an ARINC 629 fault on Flight Controls Bus (left).	27-02 TASK 996
27-14049	Primary Flight Computer (center) lane 2 has an ARINC 629 fault on Flight Controls Bus (right).	27-02 TASK 997
27-14050	Primary Flight Computer (center) lane 3 has an ARINC 629 fault on Flight Controls Bus (center).	27-02 TASK 998
27-14051	Primary Flight Computer (center) lane 3 has an ARINC 629 fault on Flight Controls Bus (left).	27-02 TASK 999
27-14052	Primary Flight Computer (center) lane 3 has an ARINC 629 fault on Flight Controls Bus (right).	27-02 TASK A00
27-14053	Primary Flight Computer (left) lane 1 has an ARINC 629 fault on Flight Controls Bus (center).	27-02 TASK A01
27-14054	Primary Flight Computer (left) lane 1 has an ARINC 629 fault on Flight Controls Bus (left).	27-02 TASK A02
27-14055	Primary Flight Computer (left) lane 1 has an ARINC 629 fault on Flight Controls Bus (right).	27-02 TASK A03
27-14056	Primary Flight Computer (left) lane 2 has an ARINC 629 fault on Flight Controls Bus (center).	27-02 TASK A04
27-14057	Primary Flight Computer (left) lane 2 has an ARINC 629 fault on Flight Controls Bus (left).	27-02 TASK A05
27-14058	Primary Flight Computer (left) lane 2 has an ARINC 629 fault on Flight Controls Bus (right).	27-02 TASK A06
27-14059	Primary Flight Computer (left) lane 3 has an ARINC 629 fault on Flight Controls Bus (center).	27-02 TASK A07
27-14060	Primary Flight Computer (left) lane 3 has an ARINC 629 fault on Flight Controls Bus (left).	27-02 TASK A08
27-14061	Primary Flight Computer (left) lane 3 has an ARINC 629 fault on Flight Controls Bus (right).	27-02 TASK A09
27-14062	Primary Flight Computer (right) lane 1 has an ARINC 629 fault on Flight Controls Bus (center).	27-02 TASK A10
27-14063	Primary Flight Computer (right) lane 1 has an ARINC 629 fault on Flight Controls Bus (left).	27-02 TASK A11
27-14064	Primary Flight Computer (right) lane 1 has an ARINC 629 fault on Flight Controls Bus (right).	27-02 TASK A12
27-14065	Primary Flight Computer (right) lane 2 has an ARINC 629 fault on Flight Controls Bus (center).	27-02 TASK A13
27-14066	Primary Flight Computer (right) lane 2 has an ARINC 629 fault on Flight Controls Bus (left).	27-02 TASK A14

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 127
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-14067	Primary Flight Computer (right) lane 2 has an ARINC 629 fault on Flight Controls Bus (right).	27-02 TASK A15
27-14068	Primary Flight Computer (right) lane 3 has an ARINC 629 fault on Flight Controls Bus (center).	27-02 TASK A16
27-14069	Primary Flight Computer (right) lane 3 has an ARINC 629 fault on Flight Controls Bus (left).	27-02 TASK A17
27-14070	Primary Flight Computer (right) lane 3 has an ARINC 629 fault on Flight Controls Bus (right).	27-02 TASK A18
27-15000	Primary Flight Computer (left) lane 1 circuit breaker is open.	27-02 TASK 803
27-15001	Primary Flight Computer (left) lane 2 circuit breaker is open.	27-02 TASK 852
27-15002	Primary Flight Computer (left) lane 3 circuit breaker is open.	27-02 TASK 853
27-15003	Primary Flight Computer (center) lane 1 circuit breaker is open.	27-02 TASK 854
27-15004	Primary Flight Computer (center) lane 2 circuit breaker is open.	27-02 TASK 855
27-15005	Primary Flight Computer (center) lane 3 circuit breaker is open.	27-02 TASK 856
27-15006	Primary Flight Computer (right) lane 1 circuit breaker is open.	27-02 TASK 857
27-15007	Primary Flight Computer (right) lane 2 circuit breaker is open.	27-02 TASK 858
27-15008	Primary Flight Computer (right) lane 3 circuit breaker is open.	27-02 TASK 859
27-15009*	Actuator Control Electronics (left 1) circuit breaker is open.	27-02 TASK 802
27-15010*	Actuator Control Electronics (left 2) circuit breaker is open.	27-02 TASK 849
27-15011*	Actuator Control Electronics (center) circuit breaker is open.	27-02 TASK 850
27-15012*	Actuator Control Electronics (right) circuit breaker is open.	27-02 TASK 851
27-15013*	Stabilizer Trim Control Module (center) arm solenoid valve circuit breaker is open.	27-41 TASK 843
27-15014*	Stabilizer Trim Control Module (right) arm solenoid valve circuit breaker is open.	27-41 TASK 817
27-15015*	Stabilizer Trim Control Module (center) control solenoid valve circuit breaker is open.	27-41 TASK 844
27-15016*	Stabilizer Trim Control Module (right) control solenoid valve circuit breaker is open.	27-41 TASK 818
27-15017	Elevator Power Control Unit (left inboard) circuit breaker is open.	27-31 TASK 864
27-15018	Elevator Power Control Unit (left outboard) circuit breaker is open.	27-31 TASK 828
27-15019	Elevator Power Control Unit (right inboard) circuit breaker is open.	27-31 TASK 865
27-15020	Elevator Power Control Unit (right outboard) circuit breaker is open.	27-31 TASK 893
27-15021*	Aileron Power Control Unit (left inboard) circuit breaker is open.	27-11 TASK 885

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 128
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-15022*	Aileron Power Control Unit (left outboard) circuit breaker is open.	27-11 TASK 836
27-15023*	Aileron Power Control Unit (right inboard) circuit breaker is open.	27-11 TASK 892
27-15024*	Aileron Power Control Unit (right outboard) circuit breaker is open.	27-11 TASK 893
27-15025*	Flaperon Power Control Unit (left inboard) circuit breaker is open.	27-11 TASK 894
27-15026*	Flaperon Power Control Unit (left outboard) circuit breaker is open.	27-11 TASK 837
27-15027*	Flaperon Power Control Unit (right inboard) / Spoiler Power Control Unit (4 & 11) circuit breaker is open.	27-11 TASK 895
27-15028*	Flaperon Power Control Unit (right outboard) circuit breaker is open.	27-11 TASK 896
27-15029	Rudder Power Control Unit (upper) circuit breaker is open.	27-21 TASK 846
27-15030	Rudder Power Control Unit (middle) circuit breaker is open.	27-21 TASK 847
27-15031	Rudder Power Control Unit (lower) circuit breaker is open.	27-21 TASK 817
27-15032	Auto Speedbrake Relay (arm) circuit breaker is open.	27-62 TASK 803
27-15033	Auto Speedbrake Relay (control) circuit breaker is open.	27-62 TASK 804
27-15034*	Elevator Feel Actuator (left) circuit breaker is open.	27-31 TASK 829
27-15035*	Elevator Feel Actuator (right) circuit breaker is open.	27-31 TASK 894
27-15036	Rudder Trim Actuator circuit breaker is open.	27-21 TASK 828
27-15100*	Flight Controls Power (left) is not available.	27-02 TASK 946
27-15101*	Flight Controls Power (center) is not available.	27-02 TASK 947
27-15102*	Flight Controls Power (right) is not available.	27-02 TASK 948
27-16000	Hydraulic systems status does not agree with Ground Maintenance Test command.	27-02 TASK 810
27-16001	AIMS-2, CMCF LDI 3114-BCG-00W-16; Actuator Control Electronics under test ACE replacement Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Actuator Control Electronics under test ACE replacement test failed.	27-02 TASK 961

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 129
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-16002	AIMS-2, CMCF LDI 3114-BCG-00W-16; Selected ground Test failed because of operator response. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Selected ground test failed because of operator response.	27-02 TASK 810
27-16003	AIMS-2, CMCF LDI 3114-BCG-00W-16; Selected ground Test does not have sufficient resources. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Selected ground test does not have sufficient resources.	27-02 TASK 811
27-16004	AIMS-2, CMCF LDI 3114-BCG-00W-16; Elevator Power Control Unit (left outboard) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Elevator Power Control Unit (left outboard) adjustment test failed.	27-31 TASK 811
27-16005	AIMS-2, CMCF LDI 3114-BCG-00W-16; Elevator Power Control Unit (left inboard) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Elevator Power Control Unit (left inboard) adjustment test failed.	27-31 TASK 874
27-16006	AIMS-2, CMCF LDI 3114-BCG-00W-16; Elevator Power Control Unit (right outboard) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Elevator Power Control Unit (right outboard) adjustment test failed.	27-31 TASK 875

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 130
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-16007	AIMS-2, CMCF LDI 3114-BCG-00W-16; Elevator Power Control Unit (right inboard) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Elevator Power Control Unit (right inboard) adjustment test failed.	27-31 TASK 876
27-16008	AIMS-2, CMCF LDI 3114-BCG-00W-16; Aileron Power Control Unit (left outboard) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Aileron Power Control Unit (left outboard) adjustment test failed.	27-11 TASK 898
27-16009	AIMS-2, CMCF LDI 3114-BCG-00W-16; Aileron Power Control Unit (left inboard) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Aileron Power Control Unit (left inboard) adjustment test failed.	27-11 TASK 899
27-16010	AIMS-2, CMCF LDI 3114-BCG-00W-16; Aileron Power Control Unit (right outboard) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Aileron Power Control Unit (right outboard) adjustment test failed.	27-11 TASK 900
27-16011	AIMS-2, CMCF LDI 3114-BCG-00W-16; Aileron Power Control Unit (right inboard) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Aileron Power Control Unit (right inboard) adjustment test failed.	27-11 TASK 901

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 131
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-16012	AIMS-2, CMCF LDI 3114-BCG-00W-16; Flaperon Power Control Unit (left outboard) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flaperon Power Control Unit (left outboard) adjustment test failed.	27-11 TASK 842
27-16013	AIMS-2, CMCF LDI 3114-BCG-00W-16; Flaperon Power Control Unit (left inboard) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flaperon Power Control Unit (left inboard) adjustment test failed.	27-11 TASK 902
27-16014	AIMS-2, CMCF LDI 3114-BCG-00W-16; Flaperon Power Control Unit (right outboard) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flaperon Power Control Unit (right outboard) adjustment test failed.	27-11 TASK 903
27-16015	AIMS-2, CMCF LDI 3114-BCG-00W-16; Flaperon Power Control Unit (right inboard) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flaperon Power Control Unit (right inboard) adjustment test failed.	27-11 TASK 904
27-16016	AIMS-2, CMCF LDI 3114-BCG-00W-16; Rudder Power Control Unit (upper) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Rudder Power Control Unit (upper) adjustment test failed.	27-21 TASK 841

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 132
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-16017	AIMS-2, CMCF LDI 3114-BCG-00W-16; Rudder Power Control Unit (middle) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Rudder Power Control Unit (middle) adjustment test failed.	27-21 TASK 842
27-16018	AIMS-2, CMCF LDI 3114-BCG-00W-16; Rudder Power Control Unit (lower) adjustment Test failed. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Rudder Power Control Unit (lower) adjustment test failed.	27-21 TASK 815
27-16019	Pedal Position Transducer (left 1) position signal is out of range.	27-21 TASK 816
27-16020	Pedal Position Transducer (left 2) position signal is out of range.	27-21 TASK 843
27-16021	Pedal Position Transducer (right 1) position signal is out of range.	27-21 TASK 844
27-16022	Pedal Position Transducer (right 2) position signal is out of range.	27-21 TASK 845
27-16023	Wheel Force Transducer Assembly #1 transducer signal is out of range.	27-11 TASK 841
27-16024	Wheel Force Transducer Assembly #2 transducer signal is out of range.	27-11 TASK 918
27-16025	Column Force Transducer (left) #1 transducer signal is out of range.	27-31 TASK 835
27-16026	Column Force Transducer (left) #2 transducer signal is out of range.	27-31 TASK 890
27-16027	Column Force Transducer (right) #1 transducer signal is out of range.	27-31 TASK 891
27-16028	Column Force Transducer (right) #2 transducer signal is out of range.	27-31 TASK 892
27-16029	Elevator Power Control Unit (left inboard) ram transducer position signal is out of range.	27-31 TASK 880
27-16030	Elevator Power Control Unit (left outboard) ram transducer position signal is out of range.	27-31 TASK 836
27-16031	Elevator Power Control Unit (right inboard) ram transducer position signal is out of range.	27-31 TASK 881

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 133
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-16032	Elevator Power Control Unit (right outboard) ram transducer position signal is out of range.	27-31 TASK 882
27-16033	Aileron Power Control Unit (left inboard) ram transducer position signal is out of range.	27-11 TASK 874
27-16034	Aileron Power Control Unit (left outboard) ram transducer position signal is out of range.	27-11 TASK 839
27-16035	Aileron Power Control Unit (right inboard) ram transducer position signal is out of range.	27-11 TASK 875
27-16036	Aileron Power Control Unit (right outboard) ram transducer position signal is out of range.	27-11 TASK 876
27-16037	Flaperon Power Control Unit (left inboard) ram transducer position signal is out of range.	27-11 TASK 877
27-16038	Flaperon Power Control Unit (left outboard) ram transducer position signal is out of range.	27-11 TASK 840
27-16039	Flaperon Power Control Unit (right inboard) ram transducer position signal is out of range.	27-11 TASK 878
27-16040	Flaperon Power Control Unit (right outboard) ram transducer position signal is out of range.	27-11 TASK 879
27-16041	Actuator Control Electronics (left 1) has an internal fault or is in Direct Mode.	27-02 TASK 949
27-16042	Actuator Control Electronics (left 2) has an internal fault or is in Direct Mode.	27-02 TASK 950
27-16043	Actuator Control Electronics (center) has an internal fault or is in Direct Mode.	27-02 TASK 951
27-16044	Actuator Control Electronics (right) has an internal fault or is in Direct Mode.	27-02 TASK 952
27-16046	Gust Suppression Pressure Transducer (lower) signal is out of range.	27-21 TASK 831
27-16047	Gust Suppression Pressure Transducer (upper) signal is out of range.	27-21 TASK 852
27-16048*	Left Elevator Surface is inoperative.	27-31 TASK 883
27-16049*	Right Elevator Surface is inoperative.	27-31 TASK 884
27-16050	Elevator Power Control Unit (left inboard) is failed by the ACE Monitor Test.	27-31 TASK 885
27-16051	Elevator Power Control Unit (left outboard) is failed by the ACE Monitor Test.	27-31 TASK 895
27-16052	Elevator Power Control Unit (right inboard) is failed by the ACE Monitor Test.	27-31 TASK 896
27-16053	Elevator Power Control Unit (right outboard) is failed by the ACE Monitor Test.	27-31 TASK 897

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 134
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-16054	Flaperon Power Control Unit (left inboard) is failed by the ACE Monitor Test.	27-11 TASK 915
27-16055	Flaperon Power Control Unit (left outboard) is failed by the ACE Monitor Test.	27-11 TASK 916
27-16056	Flaperon Power Control Unit (right inboard) is failed by the ACE Monitor Test.	27-11 TASK 917
27-16057	Flaperon Power Control Unit (right outboard) is failed by the ACE Monitor Test.	27-11 TASK 913
27-16058	Rudder Power Control Unit (upper) is failed by the ACE Monitor Test.	27-21 TASK 853
27-16059	Rudder Power Control Unit (middle) is failed by the ACE Monitor Test.	27-21 TASK 866
27-16060	Rudder Power Control Unit (lower) is failed by the ACE Monitor Test.	27-21 TASK 867
27-16061	Speedbrake Lever does not follow command.	27-62 TASK 808
27-16062	Modal Suppression Accelerometer (left) signal is out of range.	27-21 TASK 874
27-16063	Modal Suppression Accelerometer (right) signal is out of range.	27-21 TASK 875
27-17001	Auto Speedbrake Thrust Reverser Switch status does not agree with thrust reverser status from Electronic Engine Controls.	27-62 TASK 806
27-17002	ACE in direct analog discrete signal does not agree with direct digital signal from Actuator Control Electronics (left 1).	27-02 TASK 814
27-17003	ACE in direct analog discrete signal does not agree with direct digital signal from Actuator Control Electronics (left 1).	27-02 TASK 909
27-17004	ACE in direct analog discrete signal does not agree with direct digital signal from Actuator Control Electronics (left 2).	27-02 TASK 910
27-17005	ACE in direct analog discrete signal does not agree with direct digital signal from Actuator Control Electronics (left 2).	27-02 TASK 911
27-17006	ACE in direct analog discrete signal does not agree with direct digital signal from Actuator Control Electronics (center).	27-02 TASK 912
27-17007	ACE in direct analog discrete signal does not agree with direct digital signal from Actuator Control Electronics (center).	27-02 TASK 913
27-17008	ACE in direct analog discrete signal does not agree with direct digital signal from Actuator Control Electronics (right).	27-02 TASK 914
27-17009	ACE in direct analog discrete signal does not agree with direct digital signal from Actuator Control Electronics (right).	27-02 TASK 915
27-17010	Actuator Control Electronics (left 1) ACE PWR SUPP VALID 1 circuit is open or shorted.	27-02 TASK 888
27-17011	Actuator Control Electronics (left 1) ACE PWR SUPP VALID 2 circuit is open or shorted.	27-02 TASK 953

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 135
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-17012	Actuator Control Electronics (left 2) ACE PWR SUPP VALID 1 circuit is open or shorted.	27-02 TASK 954
27-17013	Actuator Control Electronics (left 2) ACE PWR SUPP VALID 2 circuit is open or shorted.	27-02 TASK 955
27-17014	Actuator Control Electronics (center) ACE PWR SUPP VALID 1 circuit is open or shorted.	27-02 TASK 956
27-17015	Actuator Control Electronics (center) ACE PWR SUPP VALID 2 circuit is open or shorted.	27-02 TASK 957
27-17016	Actuator Control Electronics (right) ACE PWR SUPP VALID 1 circuit is open or shorted.	27-02 TASK 958
27-17017	Actuator Control Electronics (right) ACE PWR SUPP VALID 2 circuit is open or shorted.	27-02 TASK 959
27-17018	Pressure signals from Gust Suppression Pressure Transducer (upper) and Gust Suppression Pressure Transducer (lower) do not agree.	27-21 TASK 827
27-17019	Wing Flight Control Shutoff valve in left hydraulic system is in closed position.	27-02 TASK 815
27-17020	Wing Flight Control Shutoff valve in center hydraulic system is in closed position.	27-02 TASK 889
27-17021	Wing Flight Control Shutoff valve in right hydraulic system is in closed position.	27-02 TASK 890
27-17022*	Tail Flight Control Shutoff valve in left hydraulic system is in closed position.	27-02 TASK 816
27-17023*	Tail Flight Control Shutoff valve in center hydraulic system is in closed position.	27-02 TASK 891
27-17024	Tail Flight Control Shutoff valve in right hydraulic system is in closed position.	27-02 TASK 892
27-17025	Signals from Modal Suppression Accelerometer (left) and Modal Suppression Accelerometer (right) do not agree.	27-21 TASK 877
27-17031	Actuator Control Electronics (center) shows that the Door 3 Escape System (left) is deployed, but Actuator Control Electronics (right) does not.	27-61 TASK 842
27-17032	Actuator Control Electronics (right) shows that the Door 3 Escape System (left) is deployed, but Actuator Control Electronics (center) does not.	27-61 TASK 843
27-17033	Actuator Control Electronics (center) shows that the Door 3 Escape System (right) is deployed, but Actuator Control Electronics (right) does not.	27-61 TASK 844
27-17034	Actuator Control Electronics (right) shows that the Door 3 Escape System (right) is deployed, but Actuator Control Electronics (center) does not.	27-61 TASK 845

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 136
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-17035	Actuator Control Electronics (center and right) show that the Door 3 Escape System (left) is deployed.	27-61 TASK 846
27-17036	Actuator Control Electronics (center and right) show that the Door 3 Escape System (right) is deployed.	27-61 TASK 847
27-17900*	AIMS-2, CMCF LDI 3114-BCG-00W-16; Primary Flight Computers are in test mode. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary flight computers are in test mode.	27-02 TASK 916
27-18000	Left and right Alternate Pitch Trim Switches are inoperative.	27-41 TASK 821
27-18010*	Autopilot Flight Director Computer (Left) command signals are invalid or do not agree with command signals from Autopilot Flight Director Computer (Center) and Autopilot Flight Director Computer (Right).	27-02 TASK 962
27-18310	AUTOSPDBRK THRUST REV switch signals from AIMS (left) and AIMS (right) are invalid or do not agree.	27-02 TASK 893
27-18510	Monitor and control flap position signals from FSEU 1 and FSEU 2 do not agree or are invalid.	27-02 TASK 894
27-18550	Flap or slat position signals from FSEU 1 and FSEU 2 do not agree or are invalid.	27-02 TASK 894
27-18560	Monitor and control slat position signals from FSEU 1 and FSEU 2 do not agree or are invalid.	27-02 TASK 894
27-18570	Thrust Resolver Angle (left) signal is invalid.	27-02 TASK 971
27-18580	Thrust Resolver Angle (right) signal is invalid.	27-02 TASK 971
27-18811*	Primary Flight Computer (left) has no output on Flight Controls ARINC 629 Bus (left).	27-02 TASK 901
27-18814*	Actuator Control Electronics (left 1) has no output on Flight Controls ARINC 629 Bus (left).	27-02 TASK 805
27-18815*	Actuator Control Electronics (left 2) has no output on Flight Controls ARINC 629 Bus (left).	27-02 TASK 862
27-18822*	Primary Flight Computer (center) has no output on Flight Controls ARINC 629 Bus (center).	27-02 TASK 919
27-18826*	Actuator Control Electronics (center) has no output on Flight Controls ARINC 629 Bus (center).	27-02 TASK 863
27-18830	Gear tilt pressure (L) signal is low when gear is down and hydraulics is pressurized.	27-02 TASK 898
27-18833*	Primary Flight Computer (right) has no output on Flight Controls ARINC 629 Bus (right).	27-02 TASK 920

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 137
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-18837*	Actuator Control Electronics (right) has no output on Flight Controls ARINC 629 Bus (right).	27-02 TASK 864
27-18850	Gear not tilt signals from PSEU 1 and PSEU 2 do not agree.	27-61 TASK 829
27-18860	Gear not tilt signals SYS1 from AIMS (left) and AIMS (right) do not agree.	27-02 TASK 895
27-18910	AIMS-2, CMCF LDI 3114-BCG-00W-16; Air/ground signals from Weight-On-Wheels Card-(left) and Weight-On-Wheels Card-(right) do not agree. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Air/ground signals from Weight-On-Wheels card-(left) and Weight-On-Wheels Card-(right) do not agree.	27-02 TASK 896
27-19010	AIMS-2, CMCF LDI 3114-BCG-00W-16; Radio Altimeter Transceiver (left) altitude signal does not agree with Altitude signals from Radio Altimeter Transceiver (center) and Radio Altimeter Transceiver (right). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Radio Altimeter Transceiver (left) altitude signal does not agree with altitude signals from Radio Altimeter Transceiver (center) and Radio Altimeter Transceiver (right).	27-02 TASK 899
27-19050*	AIMS-2, CMCF LDI 3114-BCG-00W-16; Radio Altimeter Transceiver (center) Test is not inhibited as commanded. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Radio Altimeter Transceiver (center) test is not inhibited as commanded.	27-02 TASK 900
27-19101*	AIMS-2, CMCF LDI 3114-BCG-00W-16; Primary Flight Computer has no input from Any LRU on Flight Controls ARINC 629 Bus (left). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary Flight Computer has no input from any LRU on Flight Controls ARINC 629 Bus (left).	27-02 TASK 974

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 138
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-19104	Primary Flight Computer has no input from Left AIMS on Flight Controls ARINC 629 Bus (left).	27-02 TASK 975
27-19110	Primary Flight Computer has no input from Air Data Inertial Reference Unit on Flight Controls ARINC 629 Bus (left).	27-02 TASK 976
27-19116*	Primary Flight Computer has no input from Autopilot Flight Director Computer (Left) on Flight Controls ARINC 629 Bus (left).	27-02 TASK 977
27-19128	Primary Flight Computer has no input from Power Supply Assembly (left) on Flight Controls ARINC 629 Bus (left).	27-02 TASK 978
27-19150	Warning Electronic Unit (left channel 1) stick shaker speed signal 1 does not agree with other signals or is invalid.	27-02 TASK 902
27-19160	Warning Electronic Unit (left channel 1) stick shaker AOA thrust compensation signal 1 does not agree with other signals or is invalid.	27-02 TASK 902
27-19190	Warning Electronic Unit (left channel 1) stick shaker AOA signal 1 does not agree with other signals or is invalid.	27-02 TASK 902
27-19201*	AIMS-2, CMCF LDI 3114-BCG-00W-16; Primary Flight Computer has no input from Any LRU on Flight Controls ARINC 629 Bus (center). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary Flight Computer has no input from any LRU on Flight Controls ARINC 629 Bus (center).	27-02 TASK 979
27-19219*	Primary Flight Computer has no input from Autopilot Flight Director Computer (Center) on Flight Controls ARINC 629 Bus (center).	27-02 TASK 980
27-19230	Signals from Warning Electronic Unit (left channel 1) and Warning Electronic Unit (left channel 2) do not agree or are invalid.	27-02 TASK 903
27-19231	Primary Flight Computer has no input from Power Supply Assembly (center) on Flight Controls ARINC 629 Bus (center).	27-02 TASK 981
27-19237	Primary Flight Computer has no input from Secondary Attitude Air Data Reference Unit on Flight Controls ARINC 629 Bus (center).	27-02 TASK 982

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 139
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-19240	AIMS-2, CMCF LDI 3114-BCG-00W-16; Signals from Warning Electronic Unit (right channel 1) and Warning Electronic Unit (right channel 2) do not agree or are invalid. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; signals from Warning Electronic Unit (right channel 1) and Warning Electronic Unit (right channel 2) do not agree or are invalid.	27-02 TASK 924
27-19270	Warning Electronic Unit (right channel 2) stick shaker speed signal 3 does not agree with other signals or is invalid.	27-02 TASK 921
27-19280	Warning Electronic Unit (right channel 1) stick shaker speed signal 4 does not agree with other signals or is invalid.	27-02 TASK 922
27-19301*	AIMS-2, CMCF LDI 3114-BCG-00W-16; Primary Flight Computer has no input from Any LRU on Flight Controls ARINC 629 Bus (right). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Primary Flight Computer has no input from any LRU on Flight Controls ARINC 629 Bus (right).	27-02 TASK 983
27-19307	Primary Flight Computer has no input from Right AIMS on Flight Controls ARINC 629 Bus (right).	27-02 TASK 984
27-19310	Primary Flight Computer has no input from Air Data Inertial Reference Unit on Flight Controls ARINC 629 Bus (right).	27-02 TASK 985
27-19322*	Primary Flight Computer has no input from Autopilot Flight Director Computer (Right) on Flight Controls ARINC 629 Bus (right).	27-02 TASK 986
27-19334	Primary Flight Computer has no input from Power Supply Assembly (right) on Flight Controls ARINC 629 Bus (right).	27-02 TASK 987
27-19350	Warning Electronic Unit (left channel 2) stick shaker AOA signal 2 does not agree with other signals or is invalid.	27-02 TASK 923
27-19390	Warning Electronic Unit (right channel 2) stick shaker AOA signal 3 does not agree with other signals or is invalid.	27-02 TASK 921
27-19430	Warning Electronic Unit (right channel 1) stick shaker AOA signal 4 does not agree with other signals or is invalid.	27-02 TASK 922
27-19470	Gear not tilt signals SYS2 from AIMS (left) and AIMS (right) do not agree.	27-02 TASK 897
27-19510	Gear tilt pressure (R) signal is low when gear is down and hydraulics is pressurized.	27-02 TASK 904

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 140
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-19550	AIMS-2, CMCF LDI 3114-BCG-00W-16; Radio Altimeter Transceiver (center) altitude signal does not agree with Altitude signals from Radio Altimeter Transceiver (left) and Radio Altimeter Transceiver (right). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Radio Altimeter Transceiver (center) altitude signal does not agree with altitude signals from Radio Altimeter Transceiver (left) and Radio Altimeter Transceiver (right).	27-02 TASK A19
27-19630	AIMS-2, CMCF LDI 3114-BCG-00W-16; Radio Altimeter Transceiver (right) altitude signal does not agree with Altitude signals from Radio Altimeter Transceiver (left) and Radio Altimeter Transceiver (center). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Radio Altimeter Transceiver (right) altitude signal does not agree with altitude signals from Radio Altimeter Transceiver (left) and Radio Altimeter Transceiver (center).	27-02 TASK A20
27-19670*	AIMS-2, CMCF LDI 3114-BCG-00W-16; Radio Altimeter Transceiver (left) Test is not inhibited as commanded. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Radio Altimeter Transceiver (left) test is not inhibited as commanded.	34-33 TASK 822
27-19710*	AIMS-2, CMCF LDI 3114-BCG-00W-16; Radio Altimeter Transceiver (right) Test is not inhibited as commanded. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Radio Altimeter Transceiver (right) test is not inhibited as commanded.	34-33 TASK 823
27-19730*	Autopilot Flight Director Computer command signals do not agree.	27-02 TASK 960

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 141
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-19750*	Autopilot Flight Director Computer (Center) command signals are invalid or do not agree with command signals from Autopilot Flight Director Computer (Left) and Autopilot Flight Director Computer (Right).	27-02 TASK 963
27-19790*	Autopilot Flight Director Computer (Right) command signals are invalid or do not agree with command signals from Autopilot Flight Director Computer (Left) and Autopilot Flight Director Computer (Center).	27-02 TASK 964
27-19830	Warning Electronic Unit (left channel 2) stick shaker AOA thrust compensation signal 2 does not agree with other signals or is invalid.	27-02 TASK 923
27-19870	Warning Electronic Unit (right channel 2) stick shaker AOA thrust compensation signal 3 does not agree with other signals or is invalid.	27-02 TASK 921
27-19910	Warning Electronic Unit (right channel 1) stick shaker AOA thrust compensation signal 4 does not agree with other signals or is invalid.	27-02 TASK 922
27-19950	Warning Electronic Unit (left channel 2) stick shaker speed signal 2 does not agree with other signals or is invalid.	27-02 TASK 923
27-20130	Alternate Arm signals from FSEU 1 and FSEU 2 do not agree.	27-51 TASK 861
27-20141	Circuit Breaker (Slats Elec Mot Pwr) in P200 is open.	27-81 TASK 847
27-20142	Circuit Breaker (Slats Elec Mot Pwr) in P200 is open.	27-82 TASK 824
27-20151	Circuit Breaker (Slats Elec Mot Pwr) in P200 is open.	27-81 TASK 847
27-20152	Circuit Breaker (Slats Elec Mot Pwr) in P200 is open.	27-82 TASK 824
27-20161	Circuit Breaker (Flaps Elec Mot Pwr) in P100 is open.	27-51 TASK 864
27-20162	Circuit Breaker (Flaps Elec Mot Pwr) in P100 is open.	27-52 TASK 824
27-20171	Circuit Breaker (Flaps Elec Mot Pwr) in P100 is open.	27-51 TASK 864
27-20172	Circuit Breaker (Flaps Elec Mot Pwr) in P100 is open.	27-52 TASK 824
27-20181	Circuit Breaker (Slats Elec Ctrl Rly Pwr) in P210 is open.	27-81 TASK 848
27-20182	Circuit Breaker (Slats Elec Ctrl Rly Pwr) in P210 is open.	27-82 TASK 825
27-20191	Circuit Breaker (Slats Elec Ctrl Rly Pwr) in P210 is open.	27-81 TASK 848
27-20192	Circuit Breaker (Slats Elec Ctrl Rly Pwr) in P210 is open.	27-82 TASK 825
27-20201	Circuit Breaker (Flaps Elec Ctrl Rly Pwr) in P110 is open.	27-51 TASK 865
27-20202	Circuit Breaker (Flaps Elec Ctrl Rly Pwr) in P110 is open.	27-52 TASK 825
27-20211	Circuit Breaker (Flaps Elec Ctrl Rly Pwr) in P110 is open.	27-51 TASK 865
27-20212	Circuit Breaker (Flaps Elec Ctrl Rly Pwr) in P110 is open.	27-52 TASK 825
27-20251*	Circuit Breaker (Sensor Exc 1) in P310 is open.	27-51 TASK 863
27-20252*	Circuit Breaker (Sensor Exc 2) in P210 is open.	27-52 TASK 809

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 142
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-20261*	FSEU 1 sensor excitation signals do not agree.	27-51 TASK 809
27-20262*	FSEU 2 sensor excitation signals do not agree.	27-52 TASK 810
27-20271*	FSEU 1 sensor excitation is low.	27-51 TASK 810
27-20272*	FSEU 2 sensor excitation is low.	27-52 TASK 811
27-20281	Flap Skew Snsr-L1A signal is failed.	27-59 TASK 801
27-20282	Flap Skew Snsr-L1B signal is failed.	27-59 TASK 836
27-20291	Flap Skew Snsr-L2A signal is failed.	27-59 TASK 802
27-20292	Flap Skew Snsr-L2B signal is failed.	27-59 TASK 837
27-20301	Flap Skew Snsr-L3A signal is failed.	27-59 TASK 803
27-20302	Flap Skew Snsr-L3B signal is failed.	27-59 TASK 838
27-20311	Flap Skew Snsr-L4A signal is failed.	27-59 TASK 804
27-20312	Flap Skew Snsr-L4B signal is failed.	27-59 TASK 839
27-20321	Flap Skew Snsr-R5A signal is failed.	27-59 TASK 805
27-20322	Flap Skew Snsr-R5B signal is failed.	27-59 TASK 840
27-20331	Flap Skew Snsr-R6A signal is failed.	27-59 TASK 806
27-20332	Flap Skew Snsr-R6B signal is failed.	27-59 TASK 841
27-20341	Flap Skew Snsr-R7A signal is failed.	27-59 TASK 807
27-20342	Flap Skew Snsr-R7B signal is failed.	27-59 TASK 842
27-20351	Flap Skew Snsr-R8A signal is failed.	27-59 TASK 808
27-20352	Flap Skew Snsr-R8B signal is failed.	27-59 TASK 843
27-20360	Center Hydraulic Pressure Low.	27-51 TASK 860
27-20371	Flaps Primary Low Speed Solenoid circuit is open.	27-51 TASK 801
27-20372	Flaps Primary Low Speed Solenoid circuit is open.	27-52 TASK 801
27-20381	Circuit Breaker (Flaps Pri Dr Ctrl 1) in P310 is open.	27-51 TASK 862
27-20382	Circuit Breaker (Flaps Pri Dr Ctrl 2) in P210 is open.	27-52 TASK 802
27-20390	Flaps do not move in primary mode.	27-51 TASK 802
27-20391	Flaps do not move in primary mode.	27-51 TASK 802
27-20392	Flaps do not move in primary mode.	27-51 TASK 802
27-20401	Flaps Primary Extend Solenoid circuit is open.	27-51 TASK 803
27-20402	Flaps Primary Extend Solenoid circuit is open.	27-52 TASK 803
27-20411	Flaps Primary Retract Solenoid circuit is open.	27-51 TASK 804
27-20412	Flaps Primary Retract Solenoid circuit is open.	27-52 TASK 804
27-20421	Flaps Primary Shutoff Solenoid circuit is open.	27-51 TASK 805
27-20422	Flaps Primary Shutoff Solenoid circuit is open.	27-52 TASK 805

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 143
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-20431	Flaps move without command.	27-51 TASK 806
27-20432	Flaps move without command.	27-52 TASK 806
27-20441	Flaps do not move in secondary mode.	27-51 TASK 807
27-20442	Flaps do not move in secondary mode.	27-52 TASK 807
27-20451	Flaps do not move in secondary mode automatic test.	27-51 TASK 808
27-20452	Flaps do not move in secondary mode automatic test.	27-52 TASK 808
27-20461	Flap Drive Assembly (1) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (8).	27-59 TASK 810
27-20462	Flap Drive Assembly (1) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (8).	27-59 TASK 848
27-20471	Drive system is not connected between Flap Drive Assembly (2) & Flap Drive Assembly (3).	27-59 TASK 811
27-20472	Drive system is not connected between Flap Drive Assembly (2) & Flap Drive Assembly (3).	27-59 TASK 849
27-20481	Drive system is not connected between Flap Drive Assembly (3) & Flap Drive Assembly (4).	27-59 TASK 812
27-20482	Drive system is not connected between Flap Drive Assembly (3) & Flap Drive Assembly (4).	27-59 TASK 850
27-20491	Drive system is not connected between Flap PDU & Flap Drive Assembly (4).	27-59 TASK 813
27-20492	Drive system is not connected between Flap PDU & Flap Drive Assembly (4).	27-59 TASK 851
27-20501	Drive system is not connected between Flap Drive Assembly (1) & Flap Drive Assembly (8).	27-59 TASK 821
27-20502	Drive system is not connected between Flap Drive Assembly (1) & Flap Drive Assembly (8).	27-59 TASK 852
27-20511	Flap Drive Assembly (2) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (7).	27-59 TASK 822
27-20512	Flap Drive Assembly (2) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (7).	27-59 TASK 853
27-20521	Drive system is not connected between Flap Drive Assembly (2) & Flap Drive Assembly (7).	27-59 TASK 823
27-20522	Drive system is not connected between Flap Drive Assembly (2) & Flap Drive Assembly (7).	27-59 TASK 854
27-20531	Flap Drive Assembly (3) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (6).	27-59 TASK 824
27-20532	Flap Drive Assembly (3) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (6).	27-59 TASK 855

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 144
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-20541	Drive system is not connected between Flap Drive Assembly (3) & Flap Drive Assembly (6).	27-59 TASK 825
27-20542	Drive system is not connected between Flap Drive Assembly (3) & Flap Drive Assembly (6).	27-59 TASK 856
27-20551	Flap Drive Assembly (4) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (5).	27-59 TASK 826
27-20552	Flap Drive Assembly (4) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (5).	27-59 TASK 857
27-20561	Drive system is not connected between Flap Drive Assembly (4) & Flap Drive Assembly (5).	27-59 TASK 827
27-20562	Drive system is not connected between Flap Drive Assembly (4) & Flap Drive Assembly (5).	27-59 TASK 858
27-20571	Flap Drive Assembly (5) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (4).	27-59 TASK 828
27-20572	Flap Drive Assembly (5) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (4).	27-59 TASK 859
27-20581	Drive system is not connected between Flap PDU & Flap Drive Assembly (5).	27-59 TASK 814
27-20582	Drive system is not connected between Flap PDU & Flap Drive Assembly (5).	27-59 TASK 860
27-20591	Flap Drive Assembly (6) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (3).	27-59 TASK 829
27-20592	Flap Drive Assembly (6) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (3).	27-59 TASK 861
27-20601	Drive system is not connected between Flap Drive Assembly (5) & Flap Drive Assembly (6).	27-59 TASK 815
27-20602	Drive system is not connected between Flap Drive Assembly (5) & Flap Drive Assembly (6).	27-59 TASK 862
27-20611	Flap Drive Assembly (7) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (2).	27-59 TASK 830
27-20612	Flap Drive Assembly (7) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (2).	27-59 TASK 863
27-20621	Drive system is not connected between Flap Drive Assembly (6) & Flap Drive Assembly (7).	27-59 TASK 831
27-20622	Drive system is not connected between Flap Drive Assembly (6) & Flap Drive Assembly (7).	27-59 TASK 864
27-20631	Flap Drive Assembly (8) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (1).	27-59 TASK 832
27-20632	Flap Drive Assembly (8) skew sensor signals do not agree with skew sensor signals from Flap Drive Assembly (1).	27-59 TASK 865

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 145
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-20641	AIMS-2, CMCF LDI 3114-BCG-00W-16; Flap Skew Sensor Signals do not agree. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flap skew sensor signals do not agree.	27-59 TASK 816
27-20642	AIMS-2, CMCF LDI 3114-BCG-00W-16; Flap Skew Sensor Signals do not agree. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flap skew sensor signals do not agree.	27-59 TASK 866
27-20651	Signals from Flap Skew Snsr-L1A and Flap Skew Snsr-R8A do not agree.	27-59 TASK 809
27-20652	Signals from Flap Skew Snsr-L1B and Flap Skew Snsr-R8B do not agree.	27-59 TASK 844
27-20661	Signals from Flap Skew Snsr-L2A and Flap Skew Snsr-R7A do not agree.	27-59 TASK 818
27-20662	Signals from Flap Skew Snsr-L2B and Flap Skew Snsr-R7B do not agree.	27-59 TASK 845
27-20671	Signals from Flap Skew Snsr-L3A and Flap Skew Snsr-R6A do not agree.	27-59 TASK 819
27-20672	Signals from Flap Skew Snsr-L3B and Flap Skew Snsr-R6B do not agree.	27-59 TASK 846
27-20681	Signals from Flap Skew Snsr-L4A and Flap Skew Snsr-R5A do not agree.	27-59 TASK 820
27-20682	Signals from Flap Skew Snsr-L4B and Flap Skew Snsr-R5B do not agree.	27-59 TASK 847
27-20691*	Signals from Flap Position Sensor-1L and Flap Position Sensor-1R do not agree.	27-51 TASK 811
27-20692*	Signals from Flap Position Sensor-2L and Flap Position Sensor-2R do not agree.	27-52 TASK 812
27-20701*	Flap Position Sensor-1L signal is failed.	27-51 TASK 812
27-20702*	Flap Position Sensor-2L signal is failed.	27-52 TASK 813
27-20711*	Flap Position Sensor-1R signal is failed.	27-51 TASK 813
27-20712*	Flap Position Sensor-2R signal is failed.	27-52 TASK 814
27-20721	FSEU 1 has an internal fault or its wiring is open or shorted.	27-51 TASK 814
27-20722	FSEU 2 has an internal fault or its wiring is open or shorted.	27-52 TASK 815

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 146
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-20731	Relay (Slats Bypass/Clutch Relay) in P210 is not in commanded position.	27-81 TASK 817
27-20732	Relay (Slats Bypass/Clutch Relay) in P210 is not in commanded position.	27-82 TASK 818
27-20741	Relay (Slats Bypass/Clutch Relay) in P210 is not in commanded position.	27-81 TASK 818
27-20742	Relay (Slats Bypass/Clutch Relay) in P210 is not in commanded position.	27-82 TASK 819
27-20751	Relay (Flaps Bypass/Clutch Relay) in P110 is not in commanded position.	27-51 TASK 817
27-20752	Relay (Flaps Bypass/Clutch Relay) in P110 is not in commanded position.	27-52 TASK 818
27-20761	Relay (Flaps Bypass/Clutch Relay) in P110 is not in commanded position.	27-51 TASK 818
27-20762	Relay (Flaps Bypass/Clutch Relay) in P110 is not in commanded position.	27-52 TASK 819
27-20771	Relay (Slats Extend Relay) in P210 is not in commanded position.	27-81 TASK 819
27-20772	Relay (Slats Extend Relay) in P210 is not in commanded position.	27-82 TASK 820
27-20781	Relay (Slats Extend Relay) in P210 is not in commanded position.	27-81 TASK 820
27-20782	Relay (Slats Extend Relay) in P210 is not in commanded position.	27-82 TASK 821
27-20791	Relay (Flaps Extend Relay) in P110 is not in commanded position.	27-51 TASK 819
27-20792	Relay (Flaps Extend Relay) in P110 is not in commanded position.	27-52 TASK 820
27-20801	Relay (Flaps Extend Relay) in P110 is not in commanded position.	27-51 TASK 820
27-20802	Relay (Flaps Extend Relay) in P110 is not in commanded position.	27-52 TASK 821
27-20811	Relay (Slats Retract Relay) in P210 is not in commanded position.	27-81 TASK 821
27-20812	Relay (Slats Retract Relay) in P210 is not in commanded position.	27-82 TASK 822
27-20821	Relay (Slats Retract Relay) in P210 is not in commanded position.	27-81 TASK 822
27-20822	Relay (Slats Retract Relay) in P210 is not in commanded position.	27-82 TASK 823

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 147
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-20831	Relay (Flaps Retract Relay) in P110 is not in commanded position.	27-51 TASK 821
27-20832	Relay (Flaps Retract Relay) in P110 is not in commanded position.	27-52 TASK 822
27-20841	Relay (Flaps Retract Relay) in P110 is not in commanded position.	27-51 TASK 822
27-20842	Relay (Flaps Retract Relay) in P110 is not in commanded position.	27-52 TASK 823
27-20851	Slat Drive System is disconnected on left wing.	27-81 TASK 802
27-20852	Slat Drive System is disconnected on left wing.	27-82 TASK 802
27-20861	Slat Position Sensor-1L signal is failed.	27-81 TASK 809
27-20862	Slat Position Sensor-2L signal is failed.	27-82 TASK 809
27-20891	AIMS-2, CMCF LDI 3114-BCG-00W-16; Flap Lever Position Sensor Signals do not agree. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flap Lever Position Sensor signals do not agree.	27-51 TASK 823
27-20892	AIMS-2, CMCF LDI 3114-BCG-00W-16; Flap Lever Position Sensor Signals do not agree. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flap Lever Position Sensor signals do not agree.	27-52 TASK 826
27-20901	Slat Drive System is disconnected on right wing.	27-81 TASK 803
27-20902	Slat Drive System is disconnected on right wing.	27-82 TASK 803
27-20911	Slat Position Sensor-1R signal is failed.	27-81 TASK 846
27-20912	Slat Position Sensor-2R signal is failed.	27-82 TASK 810
27-20921	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; FSEU 1 has no input from FSEU 2 on ARINC 429 Bus. AIMS-2, CMCF LDI 3114-BCG-00W-16; FSEU 1 has no input from FSEU 2 on ARINC 429 bus.	27-51 TASK 815

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 148
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-20922	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; FSEU 2 has no input from FSEU 1 on ARINC 429 Bus. AIMS-2, CMCF LDI 3114-BCG-00W-16; FSEU 2 has no input from FSEU 1 on ARINC 429 bus.	27-52 TASK 816
27-20931	FSEU 2 ARINC 429 output bus is connected incorrectly.	27-51 TASK 816
27-20932	FSEU 1 ARINC 429 output bus is connected incorrectly.	27-52 TASK 817
27-20941	Signals from left wing slat position sensors and right wing slat position sensors do not agree.	27-81 TASK 801
27-20942	Signals from left wing slat position sensors and right wing slat position sensors do not agree.	27-82 TASK 801
27-20950	Center Hydraulic Pressure Low.	27-81 TASK 844
27-20961	Slats Primary Low Speed Solenoid circuit is open.	27-81 TASK 804
27-20962	Slats Primary Low Speed Solenoid circuit is open.	27-82 TASK 804
27-20971	Circuit Breaker (Slats Pri Dr Ctrl 1) in P310 is open.	27-81 TASK 845
27-20972	Circuit Breaker (Slats Pri Dr Ctrl 2) in P210 is open.	27-82 TASK 805
27-20980	Slats do not move in primary mode.	27-81 TASK 805
27-20981	Slats do not move in primary mode.	27-81 TASK 805
27-20982	Slats do not move in primary mode.	27-81 TASK 805
27-20991	Slats Primary Extend Solenoid circuit is open.	27-81 TASK 806
27-20992	Slats Primary Extend Solenoid circuit is open.	27-82 TASK 806
27-21001	Slats Primary Retract Solenoid circuit is open.	27-81 TASK 807
27-21002	Slats Primary Retract Solenoid circuit is open.	27-82 TASK 807
27-21011	Slats Primary Shutoff Solenoid circuit is open.	27-81 TASK 808
27-21012	Slats Primary Shutoff Solenoid circuit is open.	27-82 TASK 808
27-21021	Slats move without command.	27-81 TASK 810
27-21022	Slats move without command.	27-82 TASK 811
27-21031	Slats do not move in secondary mode.	27-81 TASK 811
27-21032	Slats do not move in secondary mode.	27-82 TASK 812
27-21041	Slats do not move in secondary mode automatic test.	27-81 TASK 812
27-21042	Slats do not move in secondary mode automatic test.	27-82 TASK 813
27-21051	Signals from left wing slat position sensor and right wing slat position sensor do not agree.	27-81 TASK 813
27-21052	Signals from left wing slat position sensor and right wing slat position sensor do not agree.	27-82 TASK 814

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 149
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-21061	Slat Skew Snsr-13A shows a slat skew condition.	27-89 TASK 810
27-21062	Slat Skew Snsr-13B shows a slat skew condition.	27-89 TASK 817
27-21071	Slat Skew Snsr-13A is failed.	27-89 TASK 802
27-21072	Slat Skew Snsr-13B is failed.	27-89 TASK 816
27-21081	Slat Skew Snsr-2A shows a slat skew condition.	27-89 TASK 811
27-21082	Slat Skew Snsr-2B shows a slat skew condition.	27-89 TASK 818
27-21091	Slat Skew Snsr-2A is failed.	27-89 TASK 801
27-21092	Slat Skew Snsr-2B is failed.	27-89 TASK 815
27-21101	Slat Skew Snsr-7 Inbd A & Slat Skew Snsr-7 Outbd A show a slat skew condition.	27-89 TASK 803
27-21102	Slat Skew Snsr-7 Inbd B & Slat Skew Snsr-7 Outbd B show a slat skew condition.	27-89 TASK 819
27-21111	Slat Skew Snsr-7 Inbd A is failed.	27-89 TASK 805
27-21112	Slat Skew Snsr-7 Inbd B is failed.	27-89 TASK 821
27-21121	Slat Skew Snsr-7 Outbd A is failed.	27-89 TASK 806
27-21122	Slat Skew Snsr-7 Outbd B is failed.	27-89 TASK 822
27-21131	Slat Skew Snsr-8 Inbd A & Slat Skew Snsr-8 Outbd A show a slat skew condition.	27-89 TASK 804
27-21132	Slat Skew Snsr-8 Inbd B & Slat Skew Snsr-8 Outbd B show a slat skew condition.	27-89 TASK 820
27-21141	Slat Skew Snsr-8 Inbd A is failed.	27-89 TASK 807
27-21142	Slat Skew Snsr-8 Inbd B is failed.	27-89 TASK 823
27-21151	Slat Skew Snsr-8 Outbd A is failed.	27-89 TASK 808
27-21152	Slat Skew Snsr-8 Outbd B is failed.	27-89 TASK 824
27-21161*	Signals from Slat Position Sensor-1L and Slat Position Sensor-1R do not agree.	27-81 TASK 814
27-21162*	Signals from Slat Position Sensor-2L and Slat Position Sensor-2R do not agree.	27-82 TASK 815
27-21171*	Slat Position Sensor-1L signal is failed.	27-81 TASK 815
27-21172*	Slat Position Sensor-2L signal is failed.	27-82 TASK 816
27-21181*	Slat Position Sensor-1R signal is failed.	27-81 TASK 816
27-21182*	Slat Position Sensor-2R signal is failed.	27-82 TASK 817
27-21191	Signals from Flap Position Sensor-1L and Flap Position Sensor-1R do not agree.	27-51 TASK 824
27-21192	Signals from Flap Position Sensor-2L and Flap Position Sensor-2R do not agree.	27-52 TASK 827

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 150
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-21201	Signals from left wing flap position sensors and right wing flap position sensors do not agree.	27-51 TASK 825
27-21202	Signals from left wing flap position sensors and right wing flap position sensors do not agree.	27-52 TASK 828
27-21211	Signals from Flap Position Sensor-1L and Flap Position Sensor-1R do not agree.	27-51 TASK 826
27-21212	Signals from Flap Position Sensor-2L and Flap Position Sensor-2R do not agree.	27-52 TASK 829
27-21221	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flap Position Sensor signals do not agree with signals from Flap Skew Snsr-L1A & Flap Skew Snsr-L1B and Flap Skew Snsr-R8A & Flap Skew Snsr-R8B. AIMS-2, CMCF LDI 3114-BCG-00W-16; Flap position sensor Signals do not agree with Signals from Flap Skew Snsr-L1A & Flap Skew Snsr-L1B and Flap Skew Snsr-R8A & Flap Skew Snsr-R8B.	27-51 TASK 836
27-21222	AIMS-2, CMCF LDI 3114-BCG-00W-16; Flap position sensor Signals do not agree with Signals from Flap Skew Snsr-L1A & Flap Skew Snsr-L1B and Flap Skew Snsr-R8A & Flap Skew Snsr-R8B. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flap position sensor signals do not agree with signals from Flap Skew Snsr-L1A & Flap Skew Snsr-L1B and Flap Skew Snsr-R8A & Flap Skew Snsr-R8B.	27-52 TASK 830
27-21231	FSEU 1 Center ARINC 629 data is invalid.	27-51 TASK 837
27-21232	FSEU 2 Center ARINC 629 data is invalid.	27-52 TASK 831
27-21241*	FSEU 1 Left ARINC 629 data is invalid.	27-51 TASK 838
27-21242*	FSEU 2 Right ARINC 629 data is invalid.	27-52 TASK 832
27-21261	Center System Hydraulics Reservoir Quantity is low.	27-51 TASK 866
27-21262	Center System Hydraulics Reservoir Quantity is low.	27-52 TASK 833
27-21271	FSEU 1 Flaps Retracted analog output discretes do not follow command.	27-51 TASK 867
27-21272	FSEU 2 Flaps Retracted analog output discretes do not follow command.	27-52 TASK 834
27-21281	Slats move without command.	27-81 TASK 849

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 151
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-21282	Slats move without command.	27-81 TASK 849
27-21291	Flaps move without command.	27-51 TASK 868
27-21292	Flaps move without command.	27-51 TASK 868
27-21301	FSEU 1 program pins are incorrect.	27-51 TASK 874
27-21302	FSEU 2 program pins are incorrect.	27-52 TASK 865
27-25011	FSEU 1 did not start ground test.	27-51 TASK 839
27-25012	FSEU 2 did not start ground test.	27-52 TASK 838
27-25021	Slats and Flaps are not in commanded position.	27-51 TASK 840
27-25022	Slats and Flaps are not in commanded position.	27-51 TASK 840
27-25031	Slats extend slower than normal rate in primary mode.	27-81 TASK 824
27-25032	Slats extend slower than normal rate in primary mode.	27-82 TASK 827
27-25041	Slats extend faster than normal rate in primary mode.	27-81 TASK 823
27-25042	Slats extend faster than normal rate in primary mode.	27-82 TASK 826
27-25051	Slats retract slower than normal rate in primary mode.	27-81 TASK 825
27-25052	Slats retract slower than normal rate in primary mode.	27-82 TASK 828
27-25061	Slats retract faster than normal rate in primary mode.	27-81 TASK 823
27-25062	Slats retract faster than normal rate in primary mode.	27-82 TASK 826
27-25071	Slats extend slower than normal rate in primary low speed mode.	27-81 TASK 826
27-25072	Slats extend slower than normal rate in primary low speed mode.	27-82 TASK 829
27-25081	Slats extend faster than normal rate in primary lowspeed mode.	27-81 TASK 827
27-25082	Slats extend faster than normal rate in primary lowspeed mode.	27-82 TASK 830
27-25091	Slats retract slower than normal rate in primary low speed mode.	27-81 TASK 828
27-25092	Slats retract slower than normal rate in primary low speed mode.	27-82 TASK 831
27-25101	Slats retract faster than normal rate in primary lowspeed mode.	27-81 TASK 827
27-25102	Slats retract faster than normal rate in primary lowspeed mode.	27-82 TASK 830
27-25111	Slats extend slower than normal rate in secondary mode.	27-81 TASK 829
27-25112	Slats extend slower than normal rate in secondary mode.	27-82 TASK 832
27-25121	Slats retract slower than normal rate in secondary mode.	27-81 TASK 830
27-25122	Slats retract slower than normal rate in secondary mode.	27-82 TASK 833
27-25131	Slats do not move in secondary mode.	27-81 TASK 831
27-25132	Slats do not move in secondary mode.	27-82 TASK 834
27-25141	Slats move when the shutoff valve is commanded closed.	27-81 TASK 832

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 152
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-25142	Slats move when the shutoff valve is commanded closed.	27-82 TASK 835
27-25151	Slats do not move in primary mode.	27-81 TASK 833
27-25152	Slats do not move in primary mode.	27-82 TASK 836
27-25161	Slats do not move in secondary mode.	27-81 TASK 834
27-25162	Slats do not move in secondary mode.	27-82 TASK 837
27-25171	Signals from Slat Position Sensor-1L and Slat Position Sensor-1R do not agree.	27-81 TASK 835
27-25172	Signals from Slat Position Sensor-2L and Slat Position Sensor-2R do not agree.	27-82 TASK 838
27-25181	Flaps extend slower than normal rate in primary mode.	27-51 TASK 827
27-25182	Flaps extend slower than normal rate in primary mode.	27-52 TASK 839
27-25191	Flaps extend faster than normal rate in primary mode.	27-51 TASK 828
27-25192	Flaps extend faster than normal rate in primary mode.	27-52 TASK 840
27-25201	Flaps retract slower than normal rate in primary mode.	27-51 TASK 829
27-25202	Flaps retract slower than normal rate in primary mode.	27-52 TASK 841
27-25211	Flaps retract faster than normal rate in primary mode.	27-51 TASK 828
27-25212	Flaps retract faster than normal rate in primary mode.	27-52 TASK 840
27-25221	Flaps extend slower than normal rate in primary low speed mode.	27-51 TASK 830
27-25222	Flaps extend slower than normal rate in primary low speed mode.	27-52 TASK 842
27-25231	Flaps extend faster than normal rate in primary lowspeed mode.	27-51 TASK 831
27-25232	Flaps extend faster than normal rate in primary lowspeed mode.	27-52 TASK 843
27-25241	Flaps retract slower than normal rate in primary low speed mode.	27-51 TASK 832
27-25242	Flaps retract slower than normal rate in primary low speed mode.	27-52 TASK 844
27-25251	Flaps retract faster than normal rate in primary lowspeed mode.	27-51 TASK 831
27-25252	Flaps retract faster than normal rate in primary lowspeed mode.	27-52 TASK 843
27-25261	Flaps extend slower than normal rate in secondary mode.	27-51 TASK 833
27-25262	Flaps extend slower than normal rate in secondary mode.	27-52 TASK 845
27-25271	Flaps retract slower than normal rate in secondary mode.	27-51 TASK 834
27-25272	Flaps retract slower than normal rate in secondary mode.	27-52 TASK 846

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 153
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-25281	Flaps do not move in secondary mode.	27-51 TASK 843
27-25282	Flaps do not move in secondary mode.	27-52 TASK 848
27-25291	Flaps move when the shutoff valve is commanded closed.	27-51 TASK 844
27-25292	Flaps move when the shutoff valve is commanded closed.	27-52 TASK 849
27-25301	Flaps do not move in primary mode.	27-51 TASK 845
27-25302	Flaps do not move in primary mode.	27-52 TASK 850
27-25311	Flaps do not move in secondary mode.	27-51 TASK 846
27-25312	Flaps do not move in secondary mode.	27-52 TASK 851
27-25321	Signals from Flap Position Sensor-1L and Flap Position Sensor-1R do not agree.	27-51 TASK 847
27-25322	Signals from Flap Position Sensor-2L and Flap Position Sensor-2R do not agree.	27-52 TASK 852
27-25331	Slat Skew Snsr-2A shows a slat skew condition.	27-89 TASK 809
27-25332	Slat Skew Snsr-2B shows a slat skew condition.	27-89 TASK 825
27-25341	Signals from Slat Skew Snsr-7 Inbd A and Slat Skew Snsr-7 Outbd A do not agree.	27-89 TASK 812
27-25342	Signals from Slat Skew Snsr-7 Inbd B and Slat Skew Snsr-7 Outbd B do not agree.	27-89 TASK 826
27-25351	Signals from Slat Skew Snsr-8 Inbd A and Slat Skew Snsr-8 Outbd A do not agree.	27-89 TASK 813
27-25352	Signals from Slat Skew Snsr-8 Inbd B and Slat Skew Snsr-8 Outbd B do not agree.	27-89 TASK 827
27-25361	Slat Skew Snsr-13A shows a slat skew condition.	27-89 TASK 814
27-25362	Slat Skew Snsr-13B shows a slat skew condition.	27-89 TASK 828
27-25371	Signals from Flap Skew Snsr-L1A and Flap Skew Snsr-R8A do not agree.	27-59 TASK 817
27-25372	Signals from Flap Skew Snsr-L1B and Flap Skew Snsr-R8B do not agree.	27-59 TASK 867
27-25381	Signals from Flap Skew Snsr-L2A and Flap Skew Snsr-R7A do not agree.	27-59 TASK 833
27-25382	Signals from Flap Skew Snsr-L2B and Flap Skew Snsr-R7B do not agree.	27-59 TASK 868
27-25391	Signals from Flap Skew Snsr-L3A and Flap Skew Snsr-R6A do not agree.	27-59 TASK 834
27-25392	Signals from Flap Skew Snsr-L3B and Flap Skew Snsr-R6B do not agree.	27-59 TASK 869
27-25401	Signals from Flap Skew Snsr-L4A and Flap Skew Snsr-R5A do not agree.	27-59 TASK 835

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 154
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-25402	Signals from Flap Skew Snsr-L4B and Flap Skew Snsr-R5B do not agree.	27-59 TASK 870
27-25411	AIMS-2, CMCF LDI 3114-BCG-00W-16; Flap lever sensor Signals do not agree. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flap lever sensor signals do not agree.	27-51 TASK 835
27-25412	AIMS-2, CMCF LDI 3114-BCG-00W-16; Flap lever sensor Signals do not agree. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flap lever sensor signals do not agree.	27-52 TASK 847
27-25421	Slats Primary Extend Solenoid voltage is low.	27-81 TASK 836
27-25422	Slats Primary Extend Solenoid voltage is low.	27-82 TASK 839
27-25431	Slats Primary Retract Solenoid voltage is low.	27-81 TASK 837
27-25432	Slats Primary Retract Solenoid voltage is low.	27-82 TASK 840
27-25441	Slats Primary Low Speed Solenoid voltage is low.	27-81 TASK 838
27-25442	Slats Primary Low Speed Solenoid voltage is low.	27-82 TASK 841
27-25451	Slats Primary Shutoff Solenoid voltage is low.	27-81 TASK 839
27-25452	Slats Primary Shutoff Solenoid voltage is low.	27-82 TASK 842
27-25461	Relay (Slats Extend Relay) in P210 is not in commanded position.	27-81 TASK 840
27-25462	Relay (Slats Extend Relay) in P210 is not in commanded position.	27-82 TASK 843
27-25471	Relay (Slats Retract Relay) in P210 is not in commanded position.	27-81 TASK 841
27-25472	Relay (Slats Retract Relay) in P210 is not in commanded position.	27-82 TASK 844
27-25481	Relay (Slats Bypass/Clutch Relay) in P210 is not in commanded position.	27-81 TASK 842
27-25482	Relay (Slats Bypass/Clutch Relay) in P210 is not in commanded position.	27-82 TASK 845
27-25491	Flaps Primary Extend Solenoid voltage is low.	27-51 TASK 848
27-25492	Flaps Primary Extend Solenoid voltage is low.	27-52 TASK 853
27-25501	Flaps Primary Retract Solenoid voltage is low.	27-51 TASK 849

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 155
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-25502	Flaps Primary Retract Solenoid voltage is low.	27-52 TASK 854
27-25511	Flaps Primary Low Speed Solenoid voltage is low.	27-51 TASK 850
27-25512	Flaps Primary Low Speed Solenoid voltage is low.	27-52 TASK 855
27-25521	Flaps Primary Shutoff Solenoid voltage is low.	27-51 TASK 851
27-25522	Flaps Primary Shutoff Solenoid voltage is low.	27-52 TASK 856
27-25531	Relay (Flaps Extend Relay) in P110 is not in commanded position.	27-51 TASK 852
27-25532	Relay (Flaps Extend Relay) in P110 is not in commanded position.	27-52 TASK 857
27-25541	Relay (Flaps Retract Relay) in P110 is not in commanded position.	27-51 TASK 853
27-25542	Relay (Flaps Retract Relay) in P110 is not in commanded position.	27-52 TASK 858
27-25551	Relay (Flaps Bypass/Clutch Relay) in P110 is not in commanded position.	27-51 TASK 854
27-25552	Relay (Flaps Bypass/Clutch Relay) in P110 is not in commanded position.	27-52 TASK 859
27-25561	Autoslat Priority Valve-Main Landing Gear voltage is low.	27-81 TASK 843
27-25562	Autoslat Priority Valve-Main Landing Gear voltage is low.	27-82 TASK 846
27-25581	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flap Position Sensor signals do not agree with signals from Flap Skew Snsr-L1A & Flap Skew Snsr-R8A. AIMS-2, CMCF LDI 3114-BCG-00W-16; Flap position sensor Signals do not agree with Signals from Flap Skew Snsr-L1A & Flap Skew Snsr-R8A.	27-51 TASK 855
27-25582	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flap Position Sensor signals do not agree with signals from Flap Skew Snsr-L1B & Flap Skew Snsr-R8B. AIMS-2, CMCF LDI 3114-BCG-00W-16; Flap position sensor Signals do not agree with Signals from Flap Skew Snsr-L1B & Flap Skew Snsr-R8B.	27-52 TASK 860
27-25591	FSEU 1 has an internal fault.	27-51 TASK 856
27-25592	FSEU 2 has an internal fault.	27-52 TASK 861
27-25601	CMCF test request is invalid.	27-51 TASK 857

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

Page 156
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
27-25602	CMCF test request is invalid.	27-52 TASK 862
27-25611	Sensor excitation voltage is low.	27-51 TASK 858
27-25612	Sensor excitation voltage is low.	27-52 TASK 863
27-25621	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flap Lever Sensor signals do not agree with flap lever position. AIMS-2, CMCF LDI 3114-BCG-00W-16; Flap lever sensor Signals do not agree with flap lever position.	27-51 TASK 859
27-25622	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Flap Lever Sensor signals do not agree with flap lever position. AIMS-2, CMCF LDI 3114-BCG-00W-16; Flap lever sensor Signals do not agree with flap lever position.	27-52 TASK 864
27-25630	Slats move without command.	27-81 TASK 850
27-25640	Flaps move without command.	27-51 TASK 870
27-28801*	FSEU 1 has no output on any bus.	27-51 TASK 841
27-28802*	FSEU 2 has no output on any bus.	27-52 TASK 835
27-28841*	FSEU 1 has no output on System ARINC 629 Bus (left).	27-51 TASK 842
27-28851*	FSEU 1 has no output on System ARINC 629 Bus (center 1).	27-51 TASK 869
27-28852*	FSEU 2 has no output on System ARINC 629 Bus (center 1).	27-52 TASK 837
27-28862*	FSEU 2 has no output on System ARINC 629 Bus (right).	27-52 TASK 836

*If the MAT shows LATCHED for the correlated EICAS message, then you must erase the EICAS message after you complete the FIM task.

EFFECTIVITY
ARO ALL

27-MAINT MSG INDEX

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 157
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

801. ACE-L1 Flaps Retracted Discrete Disagree (FSEU-1) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13032.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the discrete wiring:
- (a) Open these circuit breakers and install safety tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-02 TASK 801

D633W103-ARO

Page 201
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- (c) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf.
- (d) Remove the flap/slat electronics unit 1 (FSEU 1), M27001, from the E1-6 shelf.
- (e) Do a wiring check between these pins of connector DM27121AB for the ACE-L1 and connector DM27001AA for FSEU 1 (WDM 27-02-61):

DM27121AB	DM27001AA
pin G5	pin G6

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the FSEU 1, M27001.
 - 3) Re-install the ACE-L1, M27121.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU

EFFECTIVITY
ARO ALL

27-02 TASK 801

D633W103-ARO

Page 202
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the FSEU 1, M27001. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

802. ACE-L1 Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15009.

B. Initial Evaluation

- (1) Close this circuit breaker on the left Power Supply Assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR

- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 801-802

D633W103-ARO

Page 203
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the left power supply assembly (PSA-L), M24101.

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- (c) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: (Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801).
 - (d) Remove the PSA-L, M24101, from the E1-6 shelf. To remove it, do this task: (Power Supply Assembly Removal, AMM TASK 24-35-01-000-801).
 - (e) Do a wiring check between these pins of connector DM27121AB for the ACE-L1 and connector DM24101AD at the PSA-L (WDM 27-02-31):

DM27121AB	DM24101AD
pin A1	pin 5

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-L, M24101. To install it, do this task: (Power Supply Assembly Installation, AMM TASK 24-35-01-400-801).
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: (Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803).

EFFECTIVITY
ARO ALL

27-02 TASK 802

D633W103-ARO

Page 204
May 05/2013



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- 5) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- 6) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
- 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- 8) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L1, M27121. To install it, do this task: (Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803).
- (a) Re-install the PSA-L, M24101. To install it, do this task: (Power Supply Assembly Installation, AMM TASK 24-35-01-400-801).
 - (b) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- (c) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (d) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-L, M24101. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASK 802

D633W103-ARO

Page 205
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

803. PFC-L Lane 1 Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15000.

B. Initial Evaluation

- (1) Close this circuit breaker on the left Power Supply Assembly (PSA-L), M24101:
- (a) D2, PFC LANE 1
- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

EFFECTIVITY
ARO ALL

27-02 TASKS 802-803

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 206
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Remove the left primary flight computer (PFC-L), M27106, from the E1-6 shelf. To remove it, do this task: (Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801).
- (d) Remove the PSA-L, M24101, from the E1-6 shelf. To remove it, do this task: (Power Supply Assembly Removal, AMM TASK 24-35-01-000-801).
- (e) Do a wiring check between these pins of connector DM27106AB for the, PFC-L and connector DM24101AD at the PSA-L (WDM 27-02-31):

DM27106AB

pin B2

DM24101AD

pin 3

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the PSA-L, M24101. To install it, do this task: (Power Supply Assembly Installation, AMM TASK 24-35-01-400-801).
 - 3) Re-install the PFC-L, M27106. To install it, do this task: (Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802).
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- 5) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- 6) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Replace the, PFC-L, M27106. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASK 803

D633W103-ARO

Page 207
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-L, M24101. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

804. PFC-L Lane 1 Transmit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14003.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

(a) Do this ground test on the MAT:

 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the ARINC 629 coupler, B27011, in the P112 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the, PFC-L to the FLT CTRL 629 BUS-L.

(a) Do this ground test on the MAT:

 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS 803-804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 208
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the wiring from the, PFC-L to the coupler:
- (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, and install DO-NOT-CLOSE tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- (c) Remove the, PFC-L, M27106, from the E1-6 shelf. To remove it, do this task: (Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801).
- (d) Disconnect connector DB27011 from the ARINC 629 coupler, B27011.
- (e) Do a wiring check between these pins of connector DM27106AA for the PFC-L and connector DB27011 at the ARINC 629 coupler, B27011 (WDM 27-02-41):

DM27106AA	B27011
pin 3T	pin 5
pin 3TR	pin 4
pin 6T	pin 2
pin 6TR	pin 1

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Replace the wiring.
 - 2) Re-connect connector DB27011 to the ARINC 629 coupler.
 - 3) Re-install the, PFC-L, M27106. To install it, do this task: (Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802).
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3

EFFECTIVITY
ARO ALL

27-02 TASK 804

D633W103-ARO

Page 209
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- 6) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

805. ACE-L1 No Output On Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-13046, 27-18814.

B. Initial Evaluation

- (1) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Transmitter Reset.
 - If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Transmitter Reset.
 - If the maintenance message does not show on the MAT, then you corrected the fault.
 - If the maintenance message shows on the MAT, then continue.
- (3) Replace the ARINC 629 coupler, B27111, in the P112 panel. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASKS 804-805

D633W103-ARO

Page 210
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the ACE-L1 to the Flt Ctrl 629 Bus-L.

- Do this ground test on the MAT:
 - 27-Primary Flight Controls, System Test, Transmitter Reset.
 - If the maintenance message does not show on the MAT, then you corrected the fault.
 - If the maintenance message shows on the MAT, then continue.
- Do this check of the wiring from the ACE-L1 to the coupler:
 - Open these circuit breakers and install safety tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- Remove the ACE-L1, M27121.
- Disconnect connector DB27111 from the coupler, B27111.
- Do a wiring check between these pins of connector DM27121AD at the E1-5 shelf and connector DB27111 at the P112 panel (WDM 27-02-42):

DM27121AD	DB27111
pin 5T	pin 5
pin 5TR	pin 4
pin 2T	pin 2
pin 2TR	pin 1

- If you find a problem with the wiring, then do these steps:
 - Replace the ARINC 629 wiring (SWPM 20-11-11).
 - Re-connect connector DB27111.
 - Re-install the ACE-L1, M27121.
 - Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU

EFFECTIVITY
ARO ALL

27-02 TASK 805

D633W103-ARO

Page 211
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.

END OF TASK

806. PFC Configuration Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14024.

B. Fault Isolation Procedure

- (1) Do a check of the system configuration for this system on the MAT:

- (a) 27-Primary Flight Controls.

NOTE: This maintenance message can occur if the software configuration for all three PFCs are not the same. Ignore this maintenance message if you are in the process of the software installation. If you install a software that is different than the one installed in the other PFCs, do not confirm the software configuration until you install all the PFCs with the same software.

- (b) Find these items on the display and make sure that the software and hardware part numbers are correct:

- 1) Left Primary Flight Computer
 - 2) Center Primary Flight Computer
 - 3) Right Primary Flight Computer

- (c) If a software part number is incorrect, then install software in the applicable primary flight computer (PFC). To install it, do this task: (Primary Flight Computer Software Installation, AMM TASK 27-02-01-400-803).

NOTE: Before you install the software in one PFC, you must remove electrical power to all three PFCs by opening all three PFC circuit breakers on the Power Supply Assemblies (PSA) then closing the circuit breaker for the single PFC that you will load the software.

- (d) If a hardware part number is incorrect, then replace the applicable PFC. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

- (e) If you do not find a problem with the system configuration, then continue.

- (2) Do this check of the program pin wiring for the, PFC-L:

EFFECTIVITY
ARO ALL

27-02 TASKS 805-806

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 212
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers on the PSA-L:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (b) Remove the, PFC-L, M27106.
- (c) Do a wiring check between pins F9 and J9 of connector DM27106AD for the, PFC-L (WDM 27-02-35).
- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the, PFC-L, M27106.
 - 3) Close these circuit breakers on the PSA-L:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- 4) If the MAT shows NOT ACTIVE FOR the maintenance message (or if the message does not show), you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- 1) Re-install the, PFC-L, M27106.
- (3) Do this check of the program pin wiring for the PFC-C:
- (a) Open these circuit breakers on the PSA-C:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (b) Remove the PFC-C, M27306.
- (c) Do a wiring check between pins B6 and E6 of connector DM27306AD for the PFC-C (WDM 27-02-35).
- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the PFC-C, M27306.

EFFECTIVITY
ARO ALL

27-02 TASK 806

D633W103-ARO

Page 213
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Close these circuit breakers on the PSA-C:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- 4) If the MAT shows NOT ACTIVE FOR the maintenance message (or if the message does not show), you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- 1) Re-install the PFC-C, M27306.
- (4) Do this check of the program pin wiring for the PFC-R:
- (a) Open the circuit breakers on the PSA-R:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3

- (b) Remove the PFC-R, M27206.
- (c) Do a wiring check between pins F5 and J5 of connector DM27206AD for the PFC-R (WDM 27-02-35).
- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-install the PFC-R, M27206.
- 3) Close the circuit breakers on the PSA-R:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3

EFFECTIVITY
ARO ALL

27-02 TASK 806

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 214
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- 4) If the MAT shows NOT ACTIVE FOR the maintenance message (or if the message does not show), you corrected the fault.

———— **END OF TASK** ————

807. ACE-L1 Inoperative - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13008.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) Do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the left-1 actuator control electronics (ACE-L1), M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (2) Do this check for 28 VDC at the ACE-L1:
- (a) Remove the ACE-L1, M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR

- (c) Do a check for 28 VDC from pin A1 to pin A2 of connector DM27121AB (for the ACE-L1) at the E1-5 shelf (WDM 27-02-31).
- (d) If there is not 28 VDC at pin A1 of connector DM27121AB, then do these steps:
 - 1) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27121AB (for the ACE-L1) and connector DM24101AD (for the PSA-L) (WDM 27-02-31):

DM27121AB	DM24101AD
pin A1	pin 5

EFFECTIVITY
ARO ALL

27-02 TASKS 806-807



777-200/300 FAULT ISOLATION MANUAL

- 3) Do a continuity check between pin A2 of connector DM27121AB (for the ACE-L1) and structure ground (WDM 27-02-31):
 - 4) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - d) Do this ground test on the MAT:
 - e) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - f) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 5) If you do not find a problem with the wiring, then continue.
 - 6) Install a new PSA-L, M24101, at E1-6 shelf. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - 7) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.
- (e) If there is 28 VDC at pin A1 of connector DM27121AB, then continue.
- (3) Do this check of the wiring:
- (a) Make sure the program pins of connector DM27121AB (for the ACE-L1) agree with the wiring diagram (WDM 27-02-36).
 - (b) If program pins do not agree with the wiring diagram, then do these steps:
 - 1) Change the wiring to agree with the wiring diagram.
 - 2) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

808. Actuator Control Electronics (Center) Internal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13002.

B. Initial Evaluation

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT for these maintenance messages:
 - 27-13000

EFFECTIVITY
ARO ALL

27-02 TASKS 807-808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 216
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 27-13001
- 27-13002
- 27-13003.

(a) If all the messages given in the list above are displayed, then do these steps:

- 1) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (L1) Replacement.
 - a) If maintenance message 27-13000 does not reset, replace the left 1 actuator control electronics (ACE-L1), M27121.
- 2) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (L2) Replacement.
 - a) If maintenance message 27-13001 does not reset, replace the left 2 actuator control electronics (ACE-L2), M27122.
- 3) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (C) Replacement.
 - a) If maintenance message 27-13002 does not reset, replace the center actuator control electronics (ACE-C), M27321.
- 4) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (R) Replacement.
 - a) If maintenance message 27-13003 does not reset, replace the right actuator control electronics (ACE-R), M27221.

(b) If all the messages given in the list above are not displayed, then do the fault isolation steps below.

C. Fault Isolation Procedure

- (1) Exchange the ACE-C, M27321 with ACE-L1, M27121. Do this task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Exchange the center power supply assembly (PSA-C), M24301 and the right PSA-R, M24201. Do these tasks:
 - To remove the center PSA-C and the right PSA-R: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - To install the center PSA-C into the right PSA-R position and install the right PSA-R into the center position: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (3) Dispatch the airplane and track for any of the following faults happen:
 - (a) If the fault moves to the ACE-L1 position, do these tasks to replace the center ACE-C:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (b) If the fault moves to the PSA-R position, do these tasks to replace the PSA-C:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - (c) If the fault stays in the ACE-C position, do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Confidence.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 808

D633W103-ARO

Page 217
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If the maintenance message still shows on the ground test display, then continue.
- (4) Remove the ACE-C, M27321, from the E2-5 shelf back connector for the continuity between pin-to-pin shorts, pin to shield shorts (WDM 27-02-33):

	ACE - Connector J1A		DM27321AA
AILERON BYP L	pin A13	AIL PCU BYP RTN	pin A13
AILERON BLK L	pin A15	AIL PCU BLK RTN	pin A15
FLAPERON BYP L	pin F2	FLPRN PCU BYP RTN	pin F2

	ACE - Connector J1B		DM27321AB
ACE 28VDC	pin A1	POWER SUPPLY	pin A1
ACE RET 1	pin A2	POWER SUPPLY	pin A2
RUD/SPLR RET	pin A5	RUD GND	pin A5
AIL RET	pin A7	AIL GND	pin A7
ELEV RET	pin B4	ELEV GND	pin B4
FLPRN RET	pin B6	FLPRN GND	pin B6
STAB RET	pin B8	PITCH TRIM GND	pin B8

	ACE - Connector J1C		DM27321AC
STAB TRIM ARM & POSITION NU RET	pin A2	TRIM NOSE UP CTRL RTN	pin A2
ELEVATOR BYP L	pin A13	ELEV PCU BYP RTN	pin A13
ELEVATOR BLK1 L	pin A15	ELEV PCU BLK RTN	pin A15
STAB TRIM ARM & POSITION ND RET	pin B4	TRIM NOSE DOWN CTRL RTN	pin B4
ELEVATOR BLK2 L	pin B13	ELEV PCU BLK RTN	pin B13
ELEVATOR PRESS RED L	pin B15	ELEV PCU PRESS RDCR RTN	pin B15
RUDDER BYP L	pin F2	RUD PCU BYP RTN	pin F2
RUDDER PRESS RED L	pin G4	RUD PCU PRESS RDCR RTN	pin G4
RUDDER DMP/SPLR C L	pin H3	RUD PCU DAMPED RTN	pin H3

- (a) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ACE-C. Do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (b) Do this task: Actuator Control Electronics (ACE) Monitor Test, AMM TASK 27-02-02-400-801
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

— END OF TASK —

EFFECTIVITY
ARO ALL

27-02 TASK 808

D633W103-ARO

Page 218
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

809. Actuator Control Electronics (Right) Internal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13003.

B. Initial Evaluation

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT for these maintenance messages:
- 27-13000
 - 27-13001
 - 27-13002
 - 27-13003
- (a) If all the messages given in the list above are displayed, then do these steps:
- 1) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (L1) Replacement.
 - a) If maintenance message 27-13000 does not reset, replace the left 1 actuator control electronics (ACE-L1), M27121.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (L2) Replacement.
 - a) If maintenance message 27-13001 does not reset, replace the left 2 actuator control electronics (ACE-L2), M27122.
 - 3) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (C) Replacement.
 - a) If maintenance message 27-13002 does not reset, replace the center actuator control electronics (ACE-C), M27321.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (R) Replacement.
 - a) If maintenance message 27-13003 does not reset, replace the right actuator control electronics (ACE-R), M27221.
- (b) If all the messages given in the list above are not displayed, then do the fault isolation steps below.

C. Fault Isolation Procedure

- (1) Exchange the ACE-R, M27221 with ACE-C, M27321. Do this task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Exchange the right power supply assembly (PSA-R), M24201 and the left PSA-L, M24101. Do these tasks:
- To remove the right PSA-R and the left PSA-L: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - To install the right PSA-R into the left PSA-L position and install the left PSA-L into the right PSA-R position: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (3) Dispatch the airplane and track for any of the following faults happen:
- (a) If the fault moves to the center Actuator Control Electronics (ACE-C) position, do these tasks to replace the right ACE-R:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801

EFFECTIVITY
ARO ALL

27-02 TASK 809

D633W103-ARO

Page 219
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (b) If the fault moves to the PSA-L position, do these tasks to replace the PSA-R:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (c) If the fault stays in the ACE-R position, do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Confidence.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message still shows on the ground test display, then continue.
- (4) Remove the ACE-R, M27221, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- (5) Do the wiring check from the ACE-R shelf back connector for the continuity between pin-to-pin shorts, pin to shield shorts (WDM 27-02-34):

	ACE - Connector J1A		DM27221AA
AILERON BYP L	pin A13	AIL PCU BYP RTN	pin A13
AILERON BLK L	pin A15	AIL PCU BLK RTN	pin A15
FLAPERON BYP L	pin F2	FLPRN PCU BYP RTN	pin F2

	ACE - Connector J1B		DM27221AB
ACE 28VDC	pin A1	POWER SUPPLY	pin A1
ACE RET 1	pin A2	POWER SUPPLY	pin A2
RUD/SPLR RET	pin A5	RUD GND	pin A5
AIL RET	pin A7	AIL GND	pin A7
ASPBK RET	pin A9	AUTO SPDBRK GND	pin A9
ELEV RET	pin B4	ELEV GND	pin B4
FLPRN RET	pin B6	FLPRN GND	pin B6
STAB RET	pin B8	PITCH TRIM GND	pin B8

	ACE - Connector J1C		DM27221AC
STAB TRIM ARM & POSITION NU RET	pin A2	TRIM NOSE UP CTRL RTN	pin A2
ELEVATOR BYP L	pin A13	ELEV PCU BYP RTN	pin A13
ELEVATOR BLK1 L	pin A15	ELEV PCU BLK RTN	pin A15
STAB TRIM ARM & POSITION ND RET	pin B4	TRIM NOSE DOWN CTRL RTN	pin B4
ELEVATOR BLK2 L	pin B13	ELEV PCU BLK RTN	pin B13
ELEVATOR PRESS RED L	pin B15	ELEV PCU PRESS RDCR RTN	pin B15

EFFECTIVITY
ARO ALL

27-02 TASK 809

D633W103-ARO

Page 220
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

	ACE - Connector J1C		DM27221AC
RUDDER BYP L	pin F2	RUD PCU BYP RTN	pin F2
AUTO-SPEED BRAKE XTND LO	pin F5	AUTO SPDBRK CTRL RTN	pin F5
RUDDER PRESS RED L	pin G4	RUD PCU PRESS RDCR RTN	pin G4
RUDDER DMP/SPLR C L	pin H3	RUD PCU DAMPED RTN	pin H3

- (a) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ACE-R. Do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (b) Do this task: Actuator Control Electronics (ACE) Monitor Test, AMM TASK 27-02-02-400-801
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

810. Selected Ground Test Failed Because of Operator Response - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-16000, 27-16002.

B. This task is for maintenance message: 27-16002.

C. Initial Evaluation

NOTE: This message can only occur when you do a ground test on the MAT. It occurred because of a selection you made on the MAT during the ground test. Usually this message occurs because you chose to exit the test before it finished. In some cases the message occurs because you did not perform the required action or a condition exists that prevents the results of your action.

D. Fault Isolation Procedure

NOTE: Usually no repairs are necessary for this maintenance message. This maintenance message erases automatically when you exit the ground test. If you want to make sure there are no problems, you can do the ground test again, but make sure you complete all of the steps of the ground test. If the test still does not pass, check for other maintenance messages related to the test you performed. Other related tests may have to be done to isolate the problem.

————— END OF TASK —————

811. Selected Ground Test Does Not Have Sufficient Resources - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16003.

B. Initial Evaluation

NOTE: This maintenance message occurs when you do a test on the MAT and there are not a sufficient number of primary flight computers (PFC) for the test to operate correctly. A different number of PFCs is necessary for different tests on the MAT.

EFFECTIVITY
ARO ALL

27-02 TASKS 809-811

D633W103-ARO

Page 221
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Look at the Extended Maintenance, Existing Faults display on the MAT for these maintenance messages (SELECT SORT BY ATA AND CHAPTER 27):
- (a) 27-14000
 - (b) 27-14001
 - (c) 27-14002
 - (d) 27-14003
 - (e) 27-14004
 - (f) 27-14005
 - (g) 27-14006
 - (h) 27-14007
 - (i) 27-14008
 - (j) 27-14009
 - (k) 27-14010
 - (l) 27-14011
 - (m) 27-14012
 - (n) 27-14013
 - (o) 27-14014
 - (p) 27-14015
 - (q) 27-14016
 - (r) 27-14017
 - (s) 27-14018
 - (t) 27-14019
 - (u) 27-14020
 - (v) 27-14024
 - (w) 27-14025
 - (x) 27-14026
 - (y) 27-14027
 - (z) 27-15000
 - (aa) 27-15001
 - (ab) 27-15002
 - (ac) 27-15003
 - (ad) 27-15004
 - (ae) 27-15006
 - (af) 27-15007
 - (ag) 27-14008
 - (ah) 27-15100
 - (ai) 27-15101
 - (aj) 27-15102

EFFECTIVITY
ARO ALL

27-02 TASK 811

D633W103-ARO

Page 222
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) Find the maintenance messages related to the PFCs.
- (3) Go to the 27 MAINT MSG INDEX in the FIM and find the maintenance messages.
- (4) Go to the task in the FIM and do the steps in the task.

NOTE: You may not need to correct all of the problems with the PFCs to make the test on the MAT operate correctly. First, correct the problems that are related to the center PFC and NOT related to "lane" failures. If the test continues to give this maintenance message, then correct the problems with the PFC lanes.

————— **END OF TASK** —————

812. **Primary Flight Computer (Left) Lane 1 Problems - Fault Isolation**

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURRED BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLERS EVEN AFTER THE PFC HAS BEEN REPLACED.

NOTE: Avoid swapping PFCs if any of them contains a lane fault. The state machine inside the PFC that keeps track of lane faults can get confused and generate more lane faults or get into an unrecoverable state.

NOTE: If an intermittent lane fault continues to occur, the PFC will allow the lane fault to be cleared up to 10 times before it becomes permanently latched. This allows the operator 10 attempts to narrow down the cause of the lane fault. Once a lane fault is permanently latched, the PFC must be removed and sent to a repair shop to have the fault cleared. The following procedure is written to help the operator narrow down the cause of the lane fault and avoid getting to the point where the fault is permanently latched.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14000.

B. Description

- (1) The Left Primary Flight Computer (PFC-L) Lane 1 has an internal or interface fault.

C. Possible Causes

- (1) Primary Flight Computer (Left), M27106
- (2) Flight Controls ARINC 629 (L) Coupler in P112 (PFC-L), B27011
- (3) Flight Controls ARINC 629 (R) Coupler in P212 (PFC-L), B27012
- (4) Flight Controls ARINC 629 (C) Coupler in P312 (PFC-L), B27013
- (5) Wiring

D. Related Data

- (1) WDM 27-02-41
- (2) WDM 27-02-43
- (3) WDM 27-02-45
- (4) SWPM 20-11-11

EFFECTIVITY
ARO ALL

27-02 TASKS 811-812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details



777-200/300 FAULT ISOLATION MANUAL

E. Initial Evaluation

- (1) If the Maintenance Access Terminal (MAT) shows ACTIVE or LATCHED for the maintenance message, then do this Ground Test on the MAT: Primary Flight Computer (L) Lane Reset, AMM TASK 27-02-01-740-801

NOTE: If the PFC Lane Reset was not successful, do the lane reset a second time.

- (a) If the second PFC Lane Reset was successful, swap the Left Primary Flight Computer (PFC-L), M27106 with the Right Primary Flight Computer (PFC-R), M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- 1) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.
 - a) If the maintenance message “27-14012 Primary Flight Computer (Right) lane 1 has an internal or interface fault” now shows, replace the Primary Flight Computer that was originally installed in the PFC-L, M27106 position (now in the PFC-R position). These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
 - b) If the maintenance message “27-14000 Primary Flight Computer (Left) lane 1 has an internal or interface fault” still shows, do the Fault Isolation Procedure below.
- (b) If the second PFC Lane Reset was not successful, the fault is latched and cannot be cleared on the airplane, replace the Left Primary Flight Computer (PFC-L), M27106. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

F. Fault Isolation Procedure

- (1) Swap the ARINC Couplers that follow (WDM 27-02-41, WDM 27-02-43 and WDM 27-02-45):
 - Coupler B27011 (L FC BUS T/R) PFC-L LANE 1 with
 - Coupler B27073 (C FC BUS T/R) PFC-C LANE 1
 - Coupler B27012 (R FC BUS RCV) PFC-L LANE 1 with
 - Coupler B27082 (R FC BUS RCV) PFC-C LANE 2
 - Coupler B27013 (C FC BUS RCV) PFC-L LANE 1 with
 - Coupler B27091 (L FC BUS RCV) PFC-C LANE 3
 - (2) These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801
- NOTE:** Swapping couplers can induce lane faults in the PFCs which would also need to be cleared by running the associated Primary Flight Computer (L, R, or C) Lane Reset Tests, AMM TASK 27-02-01-740-801.
- (a) Do the Repair Confirmation at the end of this task.
 - (3) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.

EFFECTIVITY
ARO ALL

27-02 TASK 812

D633W103-ARO

Page 224
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the problem follows the coupler as shown in the table below, replace the applicable coupler. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

DB Coupler - Original Position	DB Coupler - Swapped Position	Original Maintenance Message	New Maintenance Message after swap	Replace Defective Coupler (Currently in Swapped Position)
P112 (PFC-L), B27011	P312 (PFC-C), B27073	27-14000	27-14006	P312 (PFC-C), B27073
P212 (PFC-L), B27012	P212 (PFC-C), B27082	27-14000	27-14007	P212 (PFC-C), B27082
P312 (PFC-L), B27013	P112 (PFC-C), B27091	27-14000	27-14008	P112 (PFC-C), B27091

- (b) If the maintenance message "27-14000 Primary Flight Computer (Left) lane 1 has an internal or interface fault" still shows in the PFC-L position, then continue.

- (4) Do these PFC-L to the 629 Coupler wire checks:

NOTE: Since it is not possible to determine which Stub Cable has the problem, it is recommended to examine ALL THREE Stub Cable Assemblies at the same time.

- (a) Open these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (b) Remove the PFC-L, M27106. This is the task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Disconnect connectors DB27011, DB27012 and DB27013 from these ARINC 629 Couplers:
- 1) B27011 Coupler in the P112 Panel (WDM 27-02-41)
 - 2) B27012 Coupler in the P212 Panel (WDM 27-02-43)
 - 3) B27013 Coupler in the P312 Panel (WDM 27-02-45)
- (d) Do a wiring check between these pins of connector DM27106AA OR DM27106AC at the PFC-L and the 629 Coupler connectors indicated in the tables that follow:

PFC-L DM27106AA

pin 3T	.....	pin 5
pin 3TR	.....	pin 4
pin 6T	.....	pin 2
pin 6TR	.....	pin 1

B27011 COUPLER DB27011

EFFECTIVITY
ARO ALL

27-02 TASK 812

D633W103-ARO

Page 225
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

PFC-L	B27012
DM27106AC	COUPLER
	DB27012
pin 1T	pin 5
pin 1TR	pin 4
pin 3T	pin 2
pin 3TR	pin 1

PFC-L	B27013
DM27106AC	COUPLER
	DB27013
pin 5T	pin 5
pin 5TR	pin 4
pin 7T	pin 2
pin 7TR	pin 1

- (e) Examine the shelf connector pins for damage, fit and security.
- (f) Examine the coupler connector pins for damage, fit and security.
- (g) Do continuity checks and pin to shield insulation checks.
- (h) If you find a problem with the wiring, disconnect the stub cable at the shelf station and repeat the wiring check for each section to the stub cables to isolate which stub cable section is defective.
- (i) Repair or replace the defective stub cable(s) as necessary (SWPM 20-11-11).
- (j) Re-connect the coupler connectors DB27011, DB27012 and DB27013 to the 629 Couplers B27011, B27012 and B27013.
- (k) Install the couplers that you removed above. This is the task: ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.
- (l) Re-install the PFC-L, M27106. This is the task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- (m) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (n) Do the Repair Confirmation that follows.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: Primary Flight Computer (L) Lane Reset, AMM TASK 27-02-01-740-801
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-02 TASK 812

D633W103-ARO

Page 226
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

813. Primary Flight Computer (Left) is Inoperative - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14018.

B. Initial Evaluation

- (1) Open all of these circuit breakers. After they are all open, then close them.

NOTE: This message can be caused when the PFCs get power as the engines are started.
Cycling these circuit breakers will correct this problem.

- (a) On the left power supply assembly (PSA-L), in the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

- (3) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:

- (a) 27-Primary Flight Controls, System Test, Transmitter Reset.

NOTE: After 4.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.

- (b) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
- (c) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
- (d) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
- (e) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
-

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 2) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
- 3) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.

EFFECTIVITY
ARO ALL

27-02 TASKS 812-813

D633W103-ARO

Page 227
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 5) If the maintenance message shows on the MAT, then continue.
- (2) Do this check of the power and ground wiring for the, PFC-L:
- (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (b) Remove the, PFC-L, M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3

- (d) Do a check for 28 VDC between these pins of connector DM27106AB, the connector for the, PFC-L (WDM 27-02-31).
 - 1) Pin B2 (+) and pin E2 (-)
 - 2) Pin B5 (+) and pin E5 (-)
 - 3) Pin B8 (+) and pin E8 (-).
- (e) If there is not 28 VDC between the specified pins of connector DM27106AB, then do these steps:
 - 1) Replace the PSA-L, M24101. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - 2) Do a check for 28 VDC between these sets of pins again.
 - a) Pin B2 (+) and pin E2 (-)
 - b) Pin B5 (+) and pin E5 (-)
 - c) Pin B8 (+) and pin E8 (-).
 - 3) If there is not 28 VDC between these sets of pins, then do this step:
 - a) Repair the wiring between these pins of connector DM27106AB, the connector for the, PFC-L and connector DM24101AD, the connector for the PSA-L (WDM 27-02-31).

EFFECTIVITY
ARO ALL

27-02 TASK 813

D633W103-ARO

Page 228
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27106AB		DM24101AD	
pin B2	.....	pin 3	
pin E2	.....	pin 2	
pin B5	.....	pin 8	
pin E5	.....	pin 7	
pin B8	.....	pin 13	
pin E8	.....	pin 14	

- 4) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- 5) Re-install the, PFC-L, M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 6) Close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- 7) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 8) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
- 9) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
- 10) If the maintenance message does not show on the MAT, then you corrected the fault.
- (f) If there is 28 VDC between the specified pins of connector DM27106AB, then continue.
- (3) Do this check of the program pin wiring:
- (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

EFFECTIVITY
ARO ALL

27-02 TASK 813

D633W103-ARO

Page 229
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Do a wiring check between pins F9 and J9 of connector DM27106AD for the, PFC-L (WDM 27-02-35).
- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the, PFC-L, M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 3) Close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - c) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - d) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (4) Re-install the, PFC-L, M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- (5) Replace the ARINC 629 coupler, DB27011, in the P112 panel.
NOTE: This coupler connects lane 1 of the, PFC-L to the Flt Ctrl 629 Bus-L.
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - 3) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - 4) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 5) If the maintenance message shows on the MAT, then continue.
- (6) Replace the ARINC 629 coupler, DB27021, in the P112 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801
NOTE: This coupler connects lane 2 of the, PFC-L to the Flt Ctrl 629 Bus-L.
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.



777-200/300 FAULT ISOLATION MANUAL

- 2) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - 3) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - 4) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 5) If the maintenance message shows on the MAT, then continue.
- (7) Replace the ARINC 629 coupler, DB27031, in the P112 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects lane 3 of the, PFC-L to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - 3) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - 4) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 5) If the maintenance message shows on the MAT, then continue.
- (8) Do this check of the wiring from the, PFC-L to the 629 couplers:
- (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (b) Remove the, PFC-L, M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Disconnect connector DB27011 from the 629 coupler, B27011.
- (d) Disconnect connector DB27021 from the 629 coupler, B27021.
- (e) Disconnect connector DB27031 from the 629 coupler, B27031.
- (f) Do a wiring check between these pins of connector DM27106AB for the, PFC-L and connectors DB27011, DB27021, and DB27031 for the 629 couplers (WDM 27-02-41):

DM27106AA	DB27011
pin 3T	pin 5
pin 3TR	pin 4
pin 6T	pin 2
pin 6TR	pin 1

EFFECTIVITY
ARO ALL

27-02 TASK 813

D633W103-ARO

Page 231
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27106AA	DB27021
pin 9T	pin 5
pin 9TR	pin 4
pin 10T	pin 2
pin 10TR	pin 1

DM27106AA	DB27031
pin 8T	pin 5
pin 8TR	pin 4
pin 7T	pin 2
pin 7TR	pin 1

- (g) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install the, PFC-L, M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 3) Re-connect connector DB27011, DB27021, and DB27031 to their 629 couplers.
 - 4) Close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - c) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - d) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

814. ACE-L1 Direct Mode Signals on ARINC 629-L Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17002.

B. Initial Evaluation

- (1) Set the primary flight controls (PFC) DISC switch to the NORM position and wait 1.5 minutes.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS 813-814

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 232
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
 - (a) Remove the IOM(M008) and IOM(M009) modules in the left AIMS cabinet, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Open these circuit breakers and install safety tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Remove the ACE-L1, M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27121AB (for ACE-L1) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-04):

DM27121AB	J410-A	J420-A
pin J3	GROUND	GROUND
pin K3	pin C1	pin C1

EFFECTIVITY
ARO ALL

27-02 TASK 814

D633W103-ARO

Page 233
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the IOM(M008) and IOM(M009) modules in the left AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- 6) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M008) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (a) Re-install the IOM(M009) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers and install safety tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

EFFECTIVITY
ARO ALL

27-02 TASK 814

D633W103-ARO

Page 234
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M009) module in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— **END OF TASK** —————

815. Wing Flight Control Shutoff Valve in Left Hydraulic System Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17019.

B. Initial Evaluation

- (1) Set the L WING switch, S4, on the flight control hydraulic valve power panel, M27035, to the NORM position.

NOTE: This fault can occur when the L WING switch is in the SHUTOFF position.

- (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence
 - 2) 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 4) If the maintenance message shows on one of the ground test displays, then do the Fault Isolation Procedure below.
 - 5) If the maintenance message does not show on the ground test displays, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to replace the L WING switch:
 - (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	22	C27618	L FC SOV WG

EFFECTIVITY
ARO ALL

27-02 TASKS 814-815

D633W103-ARO

Page 235
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Replace the L WING switch, S4, on the flight control hydraulic valve power panel, M27035 (WDM 27-02-51).
- (c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	22	C27618	L FC SOV WG

- (d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (e) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence
 - 2) 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 4) If the maintenance message does not show on the ground test displays, you corrected the fault.
 - 5) If the maintenance message shows on one of the ground test displays, then continue.
- (2) Do this check of the wiring:
 - (a) Disconnect connector DM27035A from the flight control hydraulic valve power panel, M27035.
 - (b) Disconnect connector DV27100 from the left wing hydraulic shutoff valves, V27100.
 - (c) Do a wiring check between these pins of connector DM27035A at the overhead panel, P61, and connector DV27100 at the left wing hydraulic shutoff valve, V27100 (WDM 27-02-51):

DM27035A	DV27100
pin 4	pin 2
pin 12	pin 3

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27035A.
 - 3) Re-connect connector DV27100.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 5) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - a) 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence
 - b) 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence
 - c) 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - d) If the maintenance message does not show on the ground test displays, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27035A.

EFFECTIVITY
ARO ALL

27-02 TASK 815

D633W103-ARO

Page 236
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Replace the left wing hydraulic shutoff valve, V27100. These are the tasks:
- Hydraulic Shutoff Valve Removal, AMM TASK 27-02-32-000-801
 - Hydraulic Shutoff Valve Installation, AMM TASK 27-02-32-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
- 1) 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence
 - 2) 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- (c) If the maintenance message does not show on the ground test displays, you corrected the fault.

————— END OF TASK —————

816. Tail Flight Control Shutoff Valve in Left Hydraulic System Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17022.

B. Initial Evaluation

- (1) Set the L TAIL switch, S1, on the flight control hydraulic valve power panel, M27035, to the NORM position.

NOTE: This fault can occur when the L TAIL switch is in the SHUTOFF position.

- (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
- 1) 27-Primary Flight Controls, System Test, Stabilizer System
 - 2) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence
 - 4) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 5) If the maintenance message shows on one of the ground test displays, then do the Fault Isolation Procedure below.
 - 6) If the maintenance message does not show on the ground test displays, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to replace the L TAIL switch:
- (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	20	C27621	L FC SOV TAIL

- (b) Replace the L TAIL switch, S1 on the flight control hydraulic valve power panel, M27035 (WDM 27-02-51).

EFFECTIVITY
ARO ALL

27-02 TASKS 815-816

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 237
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	20	C27621	L FC SOV TAIL

- (d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (e) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
- 1) 27-Primary Flight Controls, System Test, Stabilizer System
 - 2) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence
 - 4) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 5) If the maintenance message does not shows on the ground test displays, you corrected the fault.
 - 6) If the maintenance message shows on one of the ground test display, then continue.
- (2) Do this check of the wiring:
- (a) Disconnect connector DM27035A from the flight control hydraulic valve power panel, M27035.
- (b) Disconnect connector DV27101 from the left tail hydraulic shutoff valves, V27101.
- (c) Do a wiring check between these pins of connector DM27035A at the overhead panel, P61, and connector DV27101 at the left tail hydraulic shutoff valve, V27101 (WDM 27-02-51):

DM27035A	DV27101
pin 15	pin 2
pin 16	pin 3

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27035A.
 - 3) Re-connect connector DV27101.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 5) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - a) 27-Primary Flight Controls, System Test, Stabilizer System
 - b) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - c) 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence
 - d) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 6) If the maintenance message does not shows on the ground test displays, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27035A.

EFFECTIVITY
ARO ALL

27-02 TASK 816

D633W103-ARO

Page 238
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Replace the left tail hydraulic shutoff valve, V27101. These are the tasks:
 - Hydraulic Shutoff Valve Removal, AMM TASK 27-02-32-000-801
 - Hydraulic Shutoff Valve Installation, AMM TASK 27-02-32-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Stabilizer System
 - 2) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence
 - 4) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 5) If the maintenance message does not shows on the ground test displays, you corrected the fault.

————— END OF TASK —————

817. Multiple Transducers (Group B Fault L1) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13016.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the following indications on the flight controls maintenance pages 1 and 2 (on the MFD) (SSM 27-02-15):

Indication	Page
CAPT RUDDER PEDAL POSITION 1	FLIGHT CONTROL PG 1/3
MID RUDDER POSITION	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: : For example, if the value shown for MID RUDDER POSITION is "00X", record "MID RUDDER POSITION". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Pedal Position
 - (b) 27-Primary Flight Controls, System Test, Rudder Position.
 - (c) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

EFFECTIVITY
ARO ALL

27-02 TASKS 816-817

D633W103-ARO

Page 239
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- (a) Put a tag that reads "SUSPECT" on the left 1 actuator control electronics (ACE-L1).
- (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
- (c) Remove the ACE-C and the ACE-L1. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-L1 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:

- 1) 27-Primary Flight Controls, System Test, Pedal Position
- 2) 27-Primary Flight Controls, System Test, Rudder Position.

- (f) If maintenance message 27-13016 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:

- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 3) Remove the ACE tagged SUSPECT from the airplane.
- 4) Install a new ACE in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 5) Do the Repair Confirmation procedure at the end of this task.

- (g) If maintenance message 27-13016 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with (h) below.

- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

- (i) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- (j) Remove the tag from the ACE-C.

- (2) Do this check for a short to ground of the excitation circuit for the L1 pedal position and mid rudder position transducers:

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

EFFECTIVITY
ARO ALL

27-02 TASK 817

D633W103-ARO

Page 240
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do a check for an electrical short to structure ground from the following pins of connectors DM27121AA and DM27121AC (for the ACE-L1) at the E1-5 shelf (WDM 27-21-12).

DM27121AA	DM27121AC
pin B5	pin K3
pin C5	pin K4

- (b) If you find an electrical short at the above pins, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27121AA		
B5 or C5	DM27137	PED POSN XDCR -L1, M27137
DM27121AC		
K3 or K4	DM27008A	RUDDER PCU-MID, M27008

- 2) Do a check for an electrical short to structure ground from connector DM27121AA and DM27121AC again (WDM 27-21-12).
- 3) If you continue to find an electrical short at connector DM27121AA or DM27121AC, then do these steps:
- a) Repair the wiring between these pins of connector DM27121AA or DM27121AC (for the ACE-L1) and the connector that was previously disconnected above (WDM 27-21-12).

DM27121AA	DM27137
pin C5	pin 8
pin B5	pin 9

DM27121AC	DM27008A
pin K3	pin 12
pin K4	pin 13

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- NOTE: Make sure you do the ACE Installation Test.
- <1> Remove the tag from the ACE-L1.
- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin B5 or C5 of connector DM27121AA or at pin K3 or K4 of connector DM27121AC, then do these steps:
- a) Replace the equipment from the table below:

EFFECTIVITY
ARO ALL

27-02 TASK 817

D633W103-ARO

Page 241
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
DM27121AA		
B5 or C5	PED POSN XDCR-L1, M27137	Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801 Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801
DM27121AC		
K3 or K4	RUDDER PCU-MID, M27008	Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801 Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- c) Do the Repair Confirmation procedure at the end of this task.

- (c) If you do not find an electrical short at connector DM27121AA or DM27121AC, then continue.

- (3) Do this check for a short between the wires of the excitation circuit for the pedal position and mid rudder position transducers:

- (a) Measure the resistance between the following pins of connector DM27121AA and DM27121AC (for the ACE-L1) (WDM 27-21-12).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

DM27121AA	DM27121AC
pin B5 and pin C5	pin K3 and pin K4

- (b) If the resistance between any of the above pins of connector DM27121AA or DM27121AC is less than 10 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below.

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27121AA		
B5 or C5	DM27137	PED POSN XDCR -L1, M27137
DM27121AC		
K3 or K4	DM27008A	RUDDER PCU-MID, M27008

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27121AA or DM27121AC (WDM 27-21-12).
- 3) If you still find continuity between the pins that previously showed low resistance on connector DM27121AA or DM27121AC, then do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK 817

D633W103-ARO

Page 242
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) Repair the wiring between these pins of connector DM27121AA or DM27121AC (for the ACE-L1) and the connector that was previously disconnected above WDM 27-21-12).

DM27121AA	DM27137
pin C5	pin 8
pin B5	pin 9

DM27121AC	DM27008A
pin K3	pin 12
pin K4	pin 13

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test

<1> Remove the tag from the ACE-L1.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that was previously showed low resistance on connector DM27121AA or DM27121AC, then do these steps:

- a) Replace the equipment from the table below:

If the low resistance was found at pin:	Replace this equipment:	Using these tasks:
DM27121AA		
B5 or C5	PED POSN XDCR-L1, M27137	Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801 Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801
DM27121AC		
K3 or K4	RUDDER PCU-MID, M27008	Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801 Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- c) Do the Repair Confirmation procedure at the end of this task.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

EFFECTIVITY
ARO ALL

27-02 TASK 817

D633W103-ARO

Page 243
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Pedal Position
 - (b) 27-Primary Flight Controls, System Test, Rudder Position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

818. Multiple Transducers (Group C Fault L1) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13020.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the following indications on the flight controls maintenance pages 1 and 2 (on the MFD) (SSM 27-02-15):

Indication	Page
CAPT WHEEL POSITION 1	FLIGHT CONTROL PG 1/3
LEFT OUTBD FLAPERON POSITION	FLIGHT CONTROL PG 2/3
LEFT STABILIZER POSITION	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for CAPT WHEEL POSITION 1 is "00X", record "CAP WHEEL POSITION 1". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Stabilizer System
 - (b) 27-Primary Flight Controls, System Test, Wheel Position
 - (c) 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (d) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
 - (e) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.

EFFECTIVITY
ARO ALL

27-02 TASKS 817-818

D633W103-ARO

Page 244
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- (a) Put a tag that reads "SUSPECT" on the left 1 actuator control electronics (ACE-L1).
- (b) Put a tag that reads "OK" on the right actuator control electronics (ACE-R).
- (c) Remove the ACE-R and the ACE-L1. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Install the ACE tagged SUSPECT in the ACE-R rack location, and install the ACE tagged OK in the ACE-L1 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:

- 1) 27-Primary Flight Controls, System Test, Stabilizer System
- 2) 27-Primary Flight Controls, System Test, Wheel Position
- 3) 27-Primary Flight Controls, System Test, Left Flaperon Position.

- (f) If maintenance message 27-13020 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:

- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

- 2) Install the ACE tagged OK in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 3) Remove the ACE tagged SUSPECT from the airplane.

- 4) Install a new ACE in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- (g) If maintenance message 27-13020 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with (h) below.

- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

- (i) Install the ACE tagged OK in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- (j) Remove the tag from the ACE-R.

777-200/300
FAULT ISOLATION MANUAL

- (2) Do this check of the excitation circuit for the left stabilizer position module, L1 wheel position transducer, and left outboard flaperon PCU command transducers:

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

- (a) Do a check for an electrical short to structure ground from the following pins of connectors DM27121AC and DM27121AA (for the ACE-L1) (WDM 27-41-12)(WDM 27-11-13)(WDM 27-11-15).

DM27121AC	DM27121AA
pin D1	pin K4
pin E1	pin K3
pin B2	
pin B1	

- (b) If you find an electrical short at the above pins, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27121AC		
D1 or E1	DM27131	WHEEL POSITION XDCR-L1, M27131
B2 or B1	DM27015	STAB POSN MDL-L, M27015
DM27121AA		
K3 or K4	DM27109	FLAPERON PCU-LOB, M27109

- 2) Do a check for an electrical short to structure ground from connector DM27121AC and DM27121AA again (WDM 27-11-15).
- 3) If you continue to find an electrical short at connector DM27121AC or DM27121AA, then do these steps:
 - a) Repair the wiring between these pins of connector DM27121AC or DM27121AA (for the ACE-L1) and the connector that was previously disconnected above (WDM 27-41-12)(WDM 27-11-15)(WDM 27-11-13).

DM27121AC DM27015

pin B1 pin 3
pin B2 pin 2

DM27121AC DM27131

pin E1 pin 8
pin D1 pin 9

DM27121AA DM27109

pin K3 pin 12
pin K4 pin 13

- b) Re-connect connector that was previously disconnected above.

— EFFECTIVITY
ARO ALL

27-02 TASK 818

D633W103-ARO

Page 246
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin B1, B2, D1 or E1 of connector DM27121AC or K3 or K4 of connector DM27121AA, then do these steps:
- a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
DM27121AC		
B2 or B1	STAB POSN MDL-L, M27015	Stabilizer Position Module Removal, AMM TASK 27-48-01-000-801 Stabilizer Position Module Installation, AMM Task 27-48-00-400-801
D1 or E1	WHEEL POSN XDCR-L1, M27131	Wheel Position Transducer Removal, AMM TASK 27-11-02-000-801 Wheel Position Transducer Installation, AMM TASK 27-11-02-400-801
DM27121AA		
K3 or K4	Left Outboard Flaperon PCU Transducer, M27109	Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801 Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- c) Do the Repair Confirmation procedure at the end of this task.
- (c) If you do not find an electrical short at connector DM27121AC or DM27121AA, then continue.
- (3) Do this check for a short between the wires of the excitation circuit for the stabilizer position module, L1 wheel position, and left outboard flaperon PCU transducers:
- (a) Measure the resistance between the following pins of connector DM27121AC and DM27121AA (for the ACE-L1) (WDM 27-41-12)(WDM 27-11-13)(WDM 27-11-15).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

DM27121AC	DM27121AA
pin D1 and pin E1	pin K3 and pin K4
pin B2 and pin B1	

EFFECTIVITY
ARO ALL

27-02 TASK 818

D633W103-ARO

Page 247
May 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (b) If the resistance between any of the above pins of connector DM27121AC or DM27121AA is less than 10 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27121AC		
D1 or E1	DM27131	WHEEL POSITION XDCR-L1, M27131
B2 or B1	DM27015	STAB POSN MDL-L, M27015
DM27121AA		
K3 or K4	DM27109	FLAPERON PCU-LOB, M27109

- 2) Do a check for continuity between pins that previously showed low resistance on connector DM27121AC or DM27121AA (WDM 27-41-12)(WDM 27-11-15)(WDM 27-11-13).
- 3) If you find continuity between pins that previously showed low resistance on connector DM27121AC or DM27121AA, then do these steps:
- a) Repair the wiring between these pins of connector DM27121AC or DM27121AA (for the ACE-L1) and the connector that was previously disconnected above.

DM27121AC	DM27015
pin B1	pin 3
pin B2	pin 2

DM27121AC	DM27131
pin E1	pin 8
pin D1	pin 9

DM27121AA	DM27109
pin K3	pin 12
pin K4	pin 13

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test

<1> Remove the tag from the ACE-L1.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that was previously showed low resistance on connector DM27121AC or DM27121AA, then do these steps:
- a) Replace the equipment from the table below:

EFFECTIVITY
ARO ALL

27-02 TASK 818

D633W103-ARO

Page 248
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

If the low resistance was found at pin:	Replace this equipment:	Using these tasks:
DM27121AC		
B2 or B1	STAB POSN MDL-L, M27015	Stabilizer Position Module Removal, AMM TASK 27-48-01-000-801 Stabilizer Position Module Installation, AMM Task 27-48-00-400-801
D1 or E1	WHEEL POSN XDCR-L1, M27131	Wheel Position Transducer Removal, AMM TASK 27-11-02-000-801 Wheel Position Transducer Installation, AMM TASK 27-11-02-400-801
DM27121AA		
K3 or K4	FLAPERON PCU-LOB, M27109	Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801 Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- c) Do the Repair Confirmation procedure at the end of this task.

- (4) Do this task for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Stabilizer System
 - (b) 27-Primary Flight Controls, System Test, Wheel Position
 - (c) 27-Primary Flight Controls, System Test, Left Flaperon Position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-02 TASK 818

D633W103-ARO

Page 249
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

819. Multiple Transducers (Group D Fault L2) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13025.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
- (a) Monitor the following indications on the flight controls maintenance pages 1 and 2 (on the MFD) (SSM 27-02-15):

Indication	Page
F/O WHEEL POSITION 1	FLIGHT CONTROL PG 1/3
CAPT WHEEL FORCE	FLIGHT CONTROL PG 1/3
LEFT ELEVATOR FEEL ACTUATOR POSITION	FLIGHT CONTROL PG 1/3
LEFT OUTBOARD AILERON POSITION	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for F/O WHEEL POSITION 1 is "00X", record "F/O WHEEL POSITION 1". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Left Aileron Position
- (b) 27-Primary Flight Controls, System Test, Elevator Feel System
- (c) 27-Primary Flight Controls, System Test, Wheel Force Transducer
- (d) 27-Primary Flight Controls, System Test, Wheel Position.
- (e) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
- (f) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- (a) Put a tag that reads "SUSPECT" on the left 2 actuator control electronics (ACE-L2).
- (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).

EFFECTIVITY
ARO ALL

27-02 TASK 819

D633W103-ARO

Page 250
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Remove the ACE-C and the ACE-L2. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-L2 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:

- 1) 27-Primary Flight Controls, System Test, Left Aileron Position
- 2) 27-Primary Flight Controls, System Test, Elevator Feel System
- 3) 27-Primary Flight Controls, System Test, Wheel Force Transducer
- 4) 27-Primary Flight Controls, System Test, Wheel Position.

- (f) If maintenance message 27-13025 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:

- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

- 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 3) Remove the ACE tagged SUSPECT from the airplane.

- 4) Install a new ACE in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 5) Do the Repair Confirmation procedure at the end of this task.

- (g) If maintenance message 27-13025 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with (h) below.

- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

- (i) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- (j) Remove the tag from the ACE-C.

- (2) Do this check of the excitation circuit for the left elevator feel actuator, right 1 wheel position transducer, wheel force transducer, and left outboard aileron PCU transducer:

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

- (a) Do a check for an electrical short to structure ground from the following pins of connectors DM27122AA and DM27122AC at the E1-1 shelf (WDM 27-31-15)(WDM 27-11-11).

DM27122AC	DM27122AA
pin G14	pin E15

EFFECTIVITY
ARO ALL

27-02 TASK 819

D633W103-ARO

Page 251
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

(Continued)

DM27122AC	DM27122AA
pin H14	pin E14
pin A11	pin E4
pin A10	pin D4

(b) If you find an electrical short at the above pins, then do these steps:

- 1) Disconnect the appropriate connector DM27020 from the left elevator feel actuator, M27020.

If the electrical short was found at pin:	Disconnect this connector	To this equipment:
DM27122AC		
G14 or H14	DM27231	WHEEL POSN XDCR-R1, M27231
A11 or A10	DM27129A	WHEEL FORCE XDCR ASSY-1, M27129
LDM27122AA		
E15 or E14	DM27107A	AILERON PCU-LOB, M27107
E4 or D4	DM27020	ELEV FEEL ACTR-L, M27020

- 2) Do a check for an electrical short to structure ground from pin D4 or E4 of connector DM27122AA again (WDM 27-31-15)(WDM 27-11-11).
- 3) If you continue to find an electrical short at connector DM27122AA or DM27122AC, then do these steps:
 - a) Repair the wiring between these pins of connector DM27122AA at the E1-1 shelf and connector DM27020 at the left elevator feel actuator, M27020 (WDM 27-31-15):

DM27122AA	DM27020
pin D4	pin 6
pin E4	pin 4

DM27122AA	DM27107A
pin E15	pin 13
pin E14	pin 12

DM27122AC	DM27231
pin G14	pin 9
pin H14	pin 8

DM27122AC	DM27129A
pin A11	pin 9
pin A10	pin 8

- b) Re-connect the connector that was previously disconnected above.

EFFECTIVITY
ARO ALL

27-02 TASK 819

D633W103-ARO

Page 252
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L2.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you still do not find an electrical short at pin D4, E4, E14 or E15 of connector DM27122AA or at pin A10, A11, G14 or H14 or connector DM27122AC, then do these steps:
- a) Check the remaining pins of connector DM27122AA and connector DM27122AC for an electrical short to structure ground.
- b) If you find an electrical short at one of these pins, repair the related wiring.
- c) Do the Repair Confirmation procedure at the end of this task.
- 5) If you do not find an electrical short at connector DM27122AA or connector DM27122AC, then do these steps:
- a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
DM27122AC		
G14 or H14	WHEEL POSN XDCR-R1, M27231	Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801 Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
A11 or A10	WHEEL FORCE XDCR ASSY-1, M27129	Wheel Force Transducer - Removal, AMM TASK 27-11-08-000-801 Wheel Force Transducer - Installation, AMM TASK 27-11-08-400-801
DM27122AA		
E15 or E14	AILERON PCU-LOB, M27107	Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801 Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
E4 or D4	ELEV FEEL ACTR-L, M27020	Elevator Feel Actuators Removal, AMM TASK 27-31-07-000-801 Elevator Feel Actuators - Installation, AMM TASK 27-31-07-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- c) Do the Repair Confirmation procedure at the end of this task.
- (c) If you do not find an electrical short at connector DM27122AA or DM27122AC, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK 819

D633W103-ARO

Page 253
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Do this check for a short between the wires of the excitation circuit for the left elevator feel actuator:

- (a) Measure the resistance between the following pins of connector DM27122AA and DM27122AC at the E1-1 shelf (WDM 27-31-15)(WDM 27-11-11).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

DM27122AC	DM27122AA
pin G14 and pin H14	pin E15 and pin E14
pin A11 and pin A10	pin E4 and pin D4

- (b) If the resistance between any of the above pins of connector DM27122AA or DM27122AC is less than 10 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

If the low resistance was found at pin:	Disconnect this connector	To this equipment:
DM27122AC		
G14 or H14	DM27231	WHEEL POSN XDCR-R1, M27231
A11 or A10	DM27129A	WHEEL FORCE XDCR ASSY-1, M27129
DM27122AA		
E15 or E14	DM27107A	AILERON PCU-LOB, M27107
E4 or D4	DM27020	ELEV FEEL ACTR-L, M27020

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27122AA or DM27122AC at the E1-1 shelf (WDM 27-31-15)(WDM 27-11-11).
- 3) If you still find continuity between the pins that previously showed low resistance on connector DM27122AA or DM27122AC, then do these steps:
- a) Repair the wiring between these pins of connector DM27122AA or DM27122AC at the E1-1 shelf and the connector that was previously disconnected above (WDM 27-31-15)(WDM 27-11-11):

DM27122AA	DM27020
pin D4	pin 6
pin E4	pin 4

DM27122AA	DM27107A
pin E15	pin 13
pin E14	pin 12

DM27122AC	DM27231
pin G14	pin 9
pin H14	pin 8

EFFECTIVITY
ARO ALL

27-02 TASK 819

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 254
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27122AC

pin A11 pin 9
pin A10 pin 8

DM27129A

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
<1> Remove the tag from the ACE-L2.
 - d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27122AA or DM27122AC, then do these steps:
- a) Check for a short between all the pins on connector DM27122AA and DM27122AC.
 - b) If you find a short between the pins, repair the related wiring.
 - c) Do the Repair Confirmation procedure at the end of this task.
- 5) If you still do not find continuity between the pins on connector DM27122AA or DM27122AC, then do these steps:
- a) Replace the equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
DM27122AC		
G14 or H14	WHEEL POSN XDCR-R1, M27231	Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801 Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
A11 or A10	WHEEL FORCE XDCR ASSY-1, M27129	Wheel Force Transducer - Removal, AMM TASK 27-11-08-000-801 Wheel Force Transducer - Installation, AMM TASK 27-11-08-400-801
DM27122AA		
E15 or E14	AILERON PCU-LOB, M27107	Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801 Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
E4 or D4	ELEV FEEL ACTR-L, M27020	Elevator Feel Actuators Removal, AMM TASK 27-31-07-000-801 Elevator Feel Actuators - Installation, AMM TASK 27-31-07-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

EFFECTIVITY
ARO ALL

27-02 TASK 819

D633W103-ARO

Page 255
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

<1> Remove the tag from the ACE-L2.

c) Do the Repair Confirmation procedure at the end of this task.

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, do this task to check for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Left Aileron Position
- (b) 27-Primary Flight Controls, System Test, Elevator Feel System
- (c) 27-Primary Flight Controls, System Test, Wheel Force Transducer
- (d) 27-Primary Flight Controls, System Test, Wheel Position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

820. Multiple Transducers (Group E Fault L2) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13029.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
- (a) Monitor the following indications on the flight controls maintenance pages 1 and 2 (on the MFD) (SSM 27-02-15):

Indication	Page
SPDBRK HANDLE POSITION 2	FLIGHT CONTROL PG 1/3
SPOILER POSITION 4	FLIGHT CONTROL PG 2/3
SPOILER POSITION 5	FLIGHT CONTROL PG 2/3
SPOILER POSITION 10	FLIGHT CONTROL PG 2/3
SPOILER POSITION 11	FLIGHT CONTROL PG 2/3

EFFECTIVITY
ARO ALL

27-02 TASKS 819-820

D633W103-ARO

Page 256
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for SPOILER POSITION 4 is "0.00X", record "SPOILER POSITION 4". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Speedbrake System
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) 27-Primary Flight Controls, System Test, Spoiler 4, 11 System
 - (c) 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
 - (d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (e) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
 - (f) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):
- NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.
- (a) Put a tag that reads "SUSPECT" on the left 2 actuator control electronics (ACE-L2).
 - (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
 - (c) Remove the ACE-C and the ACE-L2. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-L2 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.
- (e) Do these ground tests on the MAT:
- 1) 27-Primary Flight Controls, System Test, Speedbrake System
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) 27-Primary Flight Controls, System Test, Spoiler 4, 11 System
 - 3) 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.

EFFECTIVITY
ARO ALL

27-02 TASK 820

D633W103-ARO

Page 257
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (f) If maintenance message 27-13029 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 5) Do the Repair Confirmation procedure at the end of this task.
- (g) If maintenance message 27-13029 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (i) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- (j) Remove the tag from the ACE-C.
- (2) Do this check of the excitation circuit for the speedbrake lever and spoiler PCU position transducers:
NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
 - (a) Do a check for an electrical short to structure ground from the following pins D4, E4, A8, A7, K6 or K5 of connector DM27122AC (for the ACE-L2) (WDM 27-61-13).
 - (b) Do a check for an electrical short to structure ground from the following pins K6 , K5, A8 or A7 of connector DM27122AA (for the ACE-L2) WDM 27-61-13(
 - (c) If you find an electrical short at any of the above pins, then do these steps:
 - 1) Disconnect the appropriate connector from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27122AC		
D4 or E4	DM27029B	Speed Brake Lever Transducer, M27029
A8 or A7	DM27220	SPLR PCU (10), M27220
K6 or K5	DM27219	SPLR PCU (11), M27219
DM27122AA		
K6 or K5	DM27119	SPLR PCU (4), M27119
A8 or A7	DM27120	SPLR PCU (5), M27120

EFFECTIVITY
ARO ALL

27-02 TASK 820

D633W103-ARO

Page 258
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Do a check for an electrical short to structure ground from connector DM27122AA and DM27122AC again (WDM 27-61-13).
- 3) If you continue to find an electrical short at connector DM27122AA or DM27122AC, then do these steps:
 - a) Repair the wiring between these pins of connector DM27122AA or DM27122AC (for the ACE-L2) and the connector that was previously disconnected above (WDM 27-61-13).

DM27122AC	DM27029B
pin D4	pin 9
pin E4	pin 8

DM27122AC	DM27220
A8	8
A7	7

DM27122AC	DM27219
K6	8
K5	7

DM27122AA	DM27119
K6	8
K5	7

DM27122AA	DM27120
A8	8
A7	7

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L2.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin D4, E4, A8, A7, K6 or K5 of connector DM27122AC and K6, K5, A8 or A7 of connector DM27122AA, then do these steps:
 - a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
DM27122AC		

EFFECTIVITY
ARO ALL

27-02 TASK 820

D633W103-ARO

Page 259
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

(Continued)

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
D4 or E4	Speed Brake Lever Transducer, M27029.	Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-00-801 Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801
A8 or A7	SPLR PCU (10), M27220	Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-000-801
K6 or K5	SPLR PCU (11), M27219	Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-00-801 Cable-Controlled Spoiler Power Control Unit (PCU) - Install
DM27122AA		
K6 or K5	SPLR PCU (4), M27119	Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-00-801 Cable-Controlled Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-09-400-801
A8 or A7	SPLR PCU (5), M27120	Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sur you do the ACE Installation Test.

<1> Remove the tag from the ACE-L2.

- c) Do the Repair Confirmation procedure at the end of this task.
- (d) If you do not find an electrical short at connector DM27112AA or DM27122AC, then continue.
- (3) Do this check for a short between the wires of the excitation circuit for the speedbrake lever transducer:
- (a) Measure the resistance between the following pins of connector DM27122AA and DM27122AC (for the ACE-L2) (WDM 27-61-13).
- NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

At connector:	Between the pins:
DM27122AC	D4 and E4
	A8 and A7
	K6 and K5

EFFECTIVITY
ARO ALL

27-02 TASK 820

D633W103-ARO

Page 260
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

At connector:	Between the pins:
DM27122AA	K6 and K5
	A8 and A7

- (b) If the resistance between any of the above pins of connector DM27122AA or DM27122AC is less than 10 ohms, then do these steps:

1) Disconnect the appropriate connector from the table below.

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27122AC		
D4 and E4	DM27029B	Speed Brake Lever Transducer, M27029
A8 and A7	DM27220	SPLR PCU (10), M27220
K6 and K5	DM27219	SPLR PCU (11), M27219
DM27122AA		
K6 and K5	DM27119	SPLR PCU (4), M27119
A8 and A7	DM27120	SPLR PCU (5), M27120

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27122AA or DM27122AC (for the ACE-L2)(WDM 27-61-13).
- 3) If you still find continuity between the pins that previously showed low resistance on connector DM27122AA or DM27122AC (for the ACE-L2), then do these steps:
- a) Repair the wiring between these pins of connector DM27122AA or DM27122AC (for the ACE-L2) and the connector that previously disconnected above (WDM 27-61-13).

DM27122AC	DM27029B
pin D4	pin 9
pin E4	pin 8

DM27122AC	DM27220
A8	8
A7	7

DM27122AC	DM27219
K6	8
K5	7

DM27122AA	DM27119
K6	8
K5	7

EFFECTIVITY
ARO ALL

27-02 TASK 820

D633W103-ARO

Page 261
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27122AA	DM27120
A8	8
A7	7

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: Make sure you do the ACE Installation Test.
<1> Remove the tag from the ACE-L2.
 - d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27122AA or DM27122AC, then do these steps:
- a) Replace the equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Do these tasks:
DM27122AC		
D4 and E4	Speed Brake Lever Transducer, M27029.	Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-00-801 Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801
A8 and A7	SPLR PCU (10), M27220	Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-400-801
K6 and K5	SPLR PCU (11), M27219	Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-000-801 Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-400-801
DM27122AA		
K6 and K5	SPLR PCU (4), M27119	Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-000-801 Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-400-801
A8 and A7	SPLR PCU (5), M27120	Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: Make sure you do the ACE Installation Test.
<1> Remove the tag from the ACE-L2.
- c) Do the Repair Confirmation procedure at the end of this task.

EFFECTIVITY
ARO ALL

27-02 TASK 820

D633W103-ARO

Page 262
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) Do this task for obvious electrical faults in the applicable PCU wiring. Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no fault is found with the PCU wiring, then do this task to check for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Speedbrake System
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) 27-Primary Flight Controls, System Test, Spoiler 4, 11 System
 - (c) 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
 - (d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

821. Multiple Transducers Have Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13012.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the following indications on the flight control maintenance pages 1 and 2 (on the MFD)(SSM 27-02-15)

Indication	Page
CAPT COLUMN POSITION 1	FLIGHT CONTROL PG 1/3
CAPT COLUMN FORCE 1	FLIGHT CONTROL PG 1/3
LEFT OUTBD ELEVATOR POSITION	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means the data is invalid.

NOTE: For example, if the value shown for CAPT COLUMN POSITION 1 is "00X", record "CAPT COLUMN POSITION 1". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS 820-821

D633W103-ARO

Page 263
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Column Position
 - (b) 27-Primary Flight Controls, System Test, Column Force Transducer
 - (c) 27-Primary Flight Controls, System Test, Left Elevator Position
 - (d) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below
 - (e) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- (a) Put a tag that reads "SUSPECT" on the left 1 actuator control electronics (ACE-L1).
- (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
- (c) Remove the ACE-C and the ACE-L1. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-L1 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Column Position
 - 2) 27-Primary Flight Controls, System Test, Column Force Transducer
 - 3) 27-Primary Flight Controls, System Test, Left Elevator Position.
- (f) If maintenance message 27-13012 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 3) Remove the ACE tagged SUSPECT from the airplane.
- 4) Install a new ACE in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

EFFECTIVITY
ARO ALL

27-02 TASK 821

D633W103-ARO

Page 264
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Do the Repair Confirmation procedure at the end of this task.
- (g) If maintenance message 27-13012 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (i) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- NOTE:** Make sure you do the ACE Installation Test.
- (j) Remove the tag from the ACE-C.
- (2) Do this check of the excitation circuit for the left column force, left 1 column position, and left outboard elevator PCU transducers:
- NOTE:** Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
- (a) Do a check for an electrical short to structure ground from the following pins of connector DM27121AA and DM27121AC (for the ACE-L1) at the E1-5 shelf (WDM 27-31-11).

DM27121AA	DM27121AC
pin A11	pin E15
pin A10	pin E14
pin J14	
pin J13	

- (b) If you find an electrical short at any of the pins, then do these steps:
- 1) Disconnect the appropriate connector from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27121AA		
J13 or J14	DM27139A	COL FORCE XDCR ASSY-L1, M27139
A10 or A11	DM27134	COL POSN XDCR-L1, M27134
DM27121AC		
E14 or E15	DM27111A	Elevator PCU - LOB, M27111

- 2) Do a check for an electrical short to structure ground from connectors DM27121AA and DM27121AC again (WDM 27-31-11).
- 3) If you continue to find an electrical short at connector DM27121AA or DM27121AC, then do these steps:
- a) Repair the wiring between these pins of connector DM27121AA or DM27121AC (For the ACE-L1) and connector that was previously disconnected above (WDM 27-31-11).

DM27121AA	DM27139A
pin J13	pin 8
pin J14	pin 9

EFFECTIVITY
ARO ALL

27-02 TASK 821

D633W103-ARO

Page 265
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27121AA

pin A10 pin 8
pin A11 pin 9

DM27134

DM27121AC

pin E14 pin 12
pin E15 pin 13

DM27111A

- b) Re-connect connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin J13, J14, A10 or A11 of connector DM27121AA or at pin E14 or E15 of connector DM27121AC, then do these steps:
- a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
DM27121AA		
J13 or J14	COL FORCE XDCR ASSY-L1, M27139	Column Force Transducer Removal, AMM TASK 27-31-08-000-801 Column Force Transducer Installation, AMM TASK 27-31-08-400-801
A10 or A11	COL POSN XDCR-L1, M27134	Column Position Transducer Removal, AMM TASK 27-31-04-000-801 Column Position Transducer Installation, AMM TASK 27-31-04-400-801
DM27121AC		
E14 or E15	ELEVATOR PCU-LOB, M27111	Elevator Power Control Units (PCU) Removal - AMM TASK 27-31-09-000-801 Elevator Power Control Units (PCU) Installation - AMM TASK 27-31-09-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- c) Do the Repair Confirmation procedure at the end of this task.
- (c) If you do not find an electrical short at connector DM27121AA or DM27121AC, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK 821

D633W103-ARO

Page 266
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Do this check for a short between the wires of the excitation circuit for the left column force, left 1 column position, and left outboard elevator PCU transducers:

- (a) Measure the resistance between the following pins of connector DM27121AA and DM27121AC (for the ACE-L1) (WDM 27-31-11).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

At connector:	Between the pins:
DM27121AA	J13 and J14
	A10 and A11
DM27121AC	E14 and E15

- (b) If the resistance between any of the above pins of connector DM27121AA or DM27121AC is less than 10 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27121AA		
J13 and J14	DM27139A	COL FORCE XDCR ASSY-L1, M27139
A10 and A11	DM27134	COL POSN XDCR-L1, M27134
DM27121AC		
E14 and E15	DM27111A	Elevator PCU - LOB, M27111

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27121AA or DM27121AC (WDM 27-31-11).
- 3) If you still find continuity between the pins that previously showed low resistance on connector DM27121AA or DM27121AC (for the ACE-L2), then do these steps:
- a) Repair the wiring between these pins of connector DM27121AA or DM27121AC (for the ACE-L1) and connector that previously disconnected above (WDM 27-31-11).

DM27121AA	DM27134
pin A11	pin 9
pin A10	pin 8

DM27121AA	DM27139A
pin J14	pin 9
pin J13	pin 8

DM27121AC	DM27111A
pin E15	pin 13
pin E14	pin 12

- b) Re-connect the connector that was previously disconnected above.

EFFECTIVITY
ARO ALL

27-02 TASK 821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 267
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27121AA or DM27121AC, then do these steps:
- a) Replace the appropriate equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Do these tasks:
DM27121AA		
J13 or J14	COL FORCE XDCR ASSY-L1, M27139	Column Force Transducer Removal, AMM TASK 27-31-08-000-801 Column Force Transducer Installation, AMM TASK 27-31-08-400-801
A10 or A11	L1 COL POSN XDCR-L1, M27134	Column Position Transducer Removal, AMM TASK 27-31-04-000-801 Column Position Transducer Installation, AMM TASK 27-31-04-400-801
E14 or E15	ELEVATOR PCU-LOB, M27111	Elevator Power Control Units (PCU) Removal - AMM TASK 27-31-09-000-801 Elevator Power Control Units (PCU) Installation - AMM TASK 27-31-09-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- c) Do the Repair Confirmation procedure at the end of this task.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, do this task for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASK 821

D633W103-ARO

Page 268
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) 27-Primary Flight Controls, System Test, Column Position
 - (b) 27-Primary Flight Controls, System Test, Column Force Transducer
 - (c) 27-Primary Flight Controls, System Test, Left Elevator Position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

— END OF TASK —

822. Multiple Transducers (Group A Fault L2) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13013.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
- (a) Monitor the following indications on the flight control maintenance pages 1 and 2 (on the MFD) (SSM 27-02-15):

Indication	Page
F/O COLUMN FORCE 1	FLIGHT CONTROL PG 1/3
RIGHT OUTBOARD ELEVATOR PCU ACTUATOR POSITION	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for F/O WHEEL POSITION 1 is "00X", record "F/O WHEEL POSITION 1". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Column Force Transducer
 - (b) 27-Primary Flight Controls, System Test, Right Elevator Position.
 - (c) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

EFFECTIVITY
ARO ALL

27-02 TASKS 821-822

D633W103-ARO

Page 269
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Put a tag that reads "SUSPECT" on the left 2 actuator control electronics (ACE-L2).
- (b) Put a tag that reads "OK" on the right actuator control electronics (ACE-R).
- (c) Remove the ACE-R and the ACE-L2. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Install the ACE tagged SUSPECT in the ACE-R rack location, and install the ACE tagged OK in the ACE-L2 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Column Force Transducer
 - 2) 27-Primary Flight Controls, System Test, Right Elevator Position.
- (f) If maintenance message 27-13013 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - 2) Install the ACE tagged OK in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 5) Do the Repair Confirmation procedure at the end of this task.
- (g) If maintenance message 27-13013 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (i) Install the ACE tagged OK in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- (j) Remove the tag from the ACE-R.

- (2) Do this check of the excitation circuit for the right 1 column force, and the right outboard elevator PCU position transducers:

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

- (a) Do a check for an electrical short to structure ground from the following pins of connector DM27122AA and DM27122AC (for the ACE-L2)(WDM 27-31-13).

DM27122AA	DM27122AC
pin J14	pin E15
pin J13	pin E14

EFFECTIVITY
ARO ALL

27-02 TASK 822

D633W103-ARO

Page 270
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(b) If you find an electrical short at the above pins, then do these steps:

1) Disconnect the appropriate connector from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27122AA		
J13 or J14	DM27239A	COL FORCE XDCR ASSY-R1, M27239
DM27122AC		
E14 or E15	DM27211A	Elevator PCU-ROB, M27211

- 2) Do a check for an electrical short to structure ground from connector DM27122AA and DM27122AC again (WDM 27-31-13).
- 3) If you continue to find an electrical short at connector DM27122AA or DM27122AC, then do these steps:
- a) Repair the wiring between these pins of connector DM27122AA or DM27122AC (for the ACE-L2) and the connector that was previously disconnected above (WDM 27-31-13):

DM27122AA	DM27239A
pin J13	pin 8
pin J14	pin 9

DM27122AC	DM27211A
pin E14	pin 12
pin E15	pin 13

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- NOTE: Make sure you do the ACE Installation Test.
- <1> Remove the tag from the ACE-L2.
- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find an electrical short at pin J13 or J14 of connector DM27122AA or at pin E14 or E15 of connector DM27122AC, then do these steps:

a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
DM27122AA		
J13 or J14	COL FORCE XDCR ASSY-R1, M27239	Column Force Transducer Removal, AMM Task 27-31-08-000-801 Column Force Transducer Installation, AMM Task 27-31-08-400-801
DM27122AC		

EFFECTIVITY
ARO ALL

27-02 TASK 822

D633W103-ARO

Page 271
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
E14 or E15	ELEV PCU-ROB, M27211	Elevator PCU - Removal, AMM Task 27-31-09-000-801 Elevator PCU - Installation, AMM Task 27-31-09-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
<1> Remove the tag from the ACE-L2.
 - c) Do the Repair Confirmation procedure at the end of this task.
 - (c) If you do not find an electrical short at connector DM27122AA or DM27122AC, then continue.
- (3) Do this check for a short between the wires of the excitation circuit for the right 1 column force and the right outboard elevator PCU transducers:
 - (a) Measure the resistance between the following pins of connector DM27122AA and DM27122AC (for the ACE-L2) at the E1-1 shelf (WDM 27-31-13).
NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

At connector:	Between the pins:
DM27122AA	J13 and J14
DM27122AC	E14 and E15

- (b) If the resistance between any of the above pins of connector DM27122AA or DM27122AC is less than 10 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27122AA		
J13 and J14	DM27239A	COL FORCE XDCR ASSY-R1, M27239
DM27122AC		
E14 and E15	DM27211A	Elevator PCU-ROB, M27211

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27122AA or DM27122AC (for the ACE-L2) at the E1-1 shelf (WDM 27-31-13).
 - 3) If you still find continuity between the pins that previously showed low resistance on connector DM27122AA or DM27122AC (for the ACE-L2), then do these steps:
 - a) Repair the wiring between these pins of connector DM27122AA or DM27122AC (for the ACE-L2) and the connector that previously disconnected above(WDM 27-31-13):

EFFECTIVITY
ARO ALL

27-02 TASK 822

D633W103-ARO

Page 272
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27122AA

pin J13 pin 8
pin J14 pin 9

DM27239A

DM27122AC

pin E14 pin 12
pin E15 pin 13

DM27211A

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L2.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27122AA or DM27122AC, then do these steps:
- a) Replace the appropriate equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Do these tasks:
DM27122AA		
J13 and J14	COL FORCE XDCR ASSY-R1, M27239	Column Force Transducer - Removal, AMM Task 27-31-08-000-801 Column Force Transducer - Installation, AMM Task 27-31-08-400-801
DM27122AC		
E14 and E15	Elevator PCU-ROB, M27211	Elevator Feel Actuators Removal, AMM TASK 27-31-07-000-801 Elevator Feel Actuators - Installation, AMM TASK 27-31-07-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L2.

- c) Do the Repair Confirmation procedure at the end of this task.
- (4) Do this task for obvious electrical faults in the applicable PCU: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, do this task for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.

EFFECTIVITY
ARO ALL

27-02 TASK 822

D633W103-ARO

Page 273
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Column Force Transducer
 - (b) 27-Primary Flight Controls, System Test, Right Elevator Position.
- (2) If the maintenance message does not show on the ground test display (after the last test), then you corrected the fault.

————— END OF TASK —————

823. Multiple Transducers (Group A Fault C) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13014.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the following indications on the flight control maintenance pages 1 and 2 (on the MFD)(SSM 27-02-15)

Indication	Page
CAPT COLUMN POSITION 2	FLIGHT CONTROL PG 1/3
CAPT COLUMN FORCE 2	FLIGHT CONTROL PG 1/3
LEFT INBOARD ELEVATOR PCU ACTUATOR POSITION	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an “X” after the transducer value. If an “X” shows after the transducer value, it means the data is invalid.

NOTE: For example, if the value shown for CAPT COLUMN POSITION 2 is “00X”, record “CAPT COLUMN POSITION 1”. This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Column Position
 - (b) 27-Primary Flight Controls, System Test, Column Force Transducer
 - (c) 27-Primary Flight Controls, System Test, Left Elevator Position.
 - (d) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
 - (e) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

EFFECTIVITY
ARO ALL

27-02 TASKS 822-823

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 274
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- (a) Put a tag that reads "SUSPECT" on the center actuator control electronics (ACE-C).
- (b) Put a tag that reads "OK" on the left 1 actuator control electronics (ACE-L1).
- (c) Remove the ACE-C and the ACE-L1. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Install the ACE tagged SUSPECT in the ACE-L1 rack location, and install the ACE tagged OK in the ACE-C rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:

- 1) 27-Primary Flight Controls, System Test, Column Position
- 2) 27-Primary Flight Controls, System Test, Column Force Transducer
- 3) 27-Primary Flight Controls, System Test, Left Elevator Position.

- (f) If maintenance message 27-13014 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:

- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- 2) Install the ACE tagged OK in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 3) Remove the ACE tagged SUSPECT from the airplane.
- 4) Install a new ACE in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 5) Do the Repair Confirmation procedure at the end of this task.

- (g) If maintenance message 27-13014 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with step (h) below.

- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

- (i) Install the ACE tagged OK in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- (j) Remove the tag from the ACE-L1.

EFFECTIVITY
ARO ALL

27-02 TASK 823

D633W103-ARO

Page 275
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (2) Do this check of the excitation circuit for the left 2 column force, left 2 column position, and left outboard elevator PCU transducers:

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

- (a) Do a check for an electrical short to structure ground from the pins J13, J14, A10, A11, E14 and E15 of connector DM27321AA, and DM27321AC (for the ACE-C) (WDM 27-31-12).
- (b) If you find an electrical short at any of the pins, then do these steps:
- 1) Disconnect the appropriate connector from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27321AA		
J13 or J14	DM27139B	COL FORCE XDCR ASSY-L2, M27139
A10 or A11	DM27135	COL POSN XDCR-L2, M27135
DM27321AC		
E14 or E15	DM27112A	ELEV PCU - LIB, M27112

- 2) Do a check for an electrical short to structure ground from connectors DM27321AA and DM27321AC again (WDM 27-31-12).
- 3) If you continue to find an electrical short at connector DM27321AA or DM27321AC, then do these steps:
- a) Repair the wiring between these pins of connector DM27321AA or DM27321AC (For the ACE-C) and connector that was previously disconnected above (WDM 27-31-12).

DM27321AA	DM27139B
pin J13	pin 8
pin J14	pin 9

DM27321AA	DM27135
pin A10	pin 8
pin A11	pin 9

DM27321AC	DM27112A
pin E14	pin 12
pin E15	pin 13

- b) Re-connect connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C.

- d) Do the Repair Confirmation procedure at the end of this task.

EFFECTIVITY
ARO ALL

27-02 TASK 823

D633W103-ARO

Page 276
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) If you do not continue to find the electrical short at pin A10, A11, J13 or J14 of connector DM27321AA or at pin J13 or J14 of connector DM27321AA and DM27321AC, then do these steps:

- a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
DM27321AA		
J13 or J14	L2 COL FORCE XDCR, M27139	Column Force Transducer Removal, AMM TASK 27-31-08-000-801 Column Force Transducer Installation, AMM TASK 27-31-08-400-801
A10 or A11	L2 COL POSN XDCR, M27135	Column Position Transducer Removal, AMM TASK 27-31-04-000-801 Column Position Transducer Installation, AMM TASK 27-31-04-400-801
DM27321AC		
E14 or E15	ELEVATOR PCU -LIB, M27112	Elevator Power Control Units (PCU) Removal - AMM TASK 27-31-09-000-801 Elevator Power Control Units (PCU) Installation - AMM TASK 27-31-09-400-801

- b) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C.

- c) Do the Repair Confirmation procedure at the end of this task.

- (c) If you do not find an electrical short at connector DM27321AA or DM27321AC, then continue.

- (3) Do this check for a short between the wires of the excitation circuit for the left column force, left column position, and left inboard elevator PCU transducers:

- (a) Measure the resistance between the following pins of connector DM27321AA and DM27321AC (for the ACE-C) (WDM 27-31-12).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

At connector:	Between the pins:
DM27321AA	J13 and J14
	A10 and A11
DM27321AC	E14 and E15

- (b) If the resistance between any of the above pins of connector DM27321AA or DM27321AC is less than 10 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

EFFECTIVITY
ARO ALL

27-02 TASK 823

D633W103-ARO

Page 277
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27321AA		
J13 or J14	DM27139B	COL FORCE XDCR ASSY-L2, M27139
A10 or A11	DM27135	COL POSN XDCR-L2, M27135
DM273211AC		
E14 or E15	DM27112A	ELEV PCU-LIB, M27112

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27321AA or DM27321AC (WDM 27-31-12).
- 3) If you find continuity between the pins of connector DM27321AA or DM27321AC (for the ACE-C), then do these steps:
 - a) Repair the wiring between these pins of connector DM27321AA or DM27321AC (for the ACE-C) and connector that previously disconnected above (WDM 27-31-12).

DM27321AA	DM27139B
pin J13	pin 8
pin J14	pin 9

DM27321AA	DM27135
pin A10	pin 8
pin A11	pin 9

DM27321AC	DM27112A
pin E14	pin 12
pin E15	pin 13

- b) Re-connect te connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from ACE-C

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27321AA or DM27321AC, then do these steps:
 - a) Replace the appropriate equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Do these tasks:
DM27121AA		

EFFECTIVITY
ARO ALL

27-02 TASK 823

D633W103-ARO

Page 278
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the low resistance was found at pins:	Replace this equipment:	Do these tasks:
J13 or J14	COL FORCE XDCR ASSY-L2, M27139	Column Force Transducer Removal, AMM TASK 27-31-08-000-801 Column Force Transducer Installation, AMM TASK 27-31-08-400-801
A10 or A11	COL POSN XDCR -L2, M27135	Column Position Transducer Removal, AMM TASK 27-31-04-000-801 Column Position Transducer Installation, AMM TASK 27-31-04-400-801
E14 or E15	ELEVATOR PCU-LIB, M27112	Elevator Power Control Units (PCU) Removal - AMM TASK 27-31-09-000-801 Elevator Power Control Units (PCU) Installation - AMM TASK 27-31-09-400-801

- b) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C.

- c) Do the Repair Confirmation procedure at the end of this task.

- (4) Do this task for obvious electrical faults in the applicable PCU wiring.:Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found, then do this task for applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Column Position
- (b) 27-Primary Flight Controls, System Test, Column Force Transducer
- (c) 27-Primary Flight Controls, System Test, Left Elevator Position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-02 TASK 823

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 279
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

824. Multiple Transducers (Group A Fault R) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13015.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
- (a) Monitor the following indications on the flight control maintenance pages 1 or 2 (on the MFD)(SSM 27-02-15)

Indication	Page
F/O COLUMN POSITION 3	FLIGHT CONTROL PG 1/3
F/O COLUMN FORCE 2	FLIGHT CONTROL PG 1/3
RIGHT INBD ELEVATOR PCU ACTUATOR POSITION	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means the data is invalid.

NOTE: For example, if the value shown for F/O COLUMN POSITION 3 is "00X", record "F/O COLUMN POSITION 3". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Column Position
- (b) 27-Primary Flight Controls, System Test, Column Force Transducer
- (c) 27-Primary Flight Controls, System Test, Right Elevator Position.
- (d) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
- (e) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- (a) Put a tag that reads "SUSPECT" on the right actuator control electronics (ACE-R).
- (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
- (c) Remove the ACE-C and the ACE-R. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

EFFECTIVITY
ARO ALL

27-02 TASK 824

D633W103-ARO

Page 280
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-R rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:

- 1) 27-Primary Flight Controls, System Test, Column Position
- 2) 27-Primary Flight Controls, System Test, Column Force Transducer
- 3) 27-Primary Flight Controls, System Test, Right Elevator Position.

- (f) If maintenance message 27-13015 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:

- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

- 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 3) Remove the ACE tagged SUSPECT from the airplane.

- 4) Install a new ACE in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 5) Do the Repair Confirmation procedure at the end of this task.

- (g) If maintenance message 27-13015 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with (h) below.

- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

- (i) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- (j) Remove the tag from the ACE-C.

- (2) Do this check of the excitation circuit for the right 2 column force, right 3 column position, and right inboard elevator PCU position transducers:

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

- (a) Do a check for an electrical short to structure ground for the following pins of connector DM27221AA and DM27221AC (for the ACE-R) at the E5-2 shelf (WDM 27-31-14).

DM27221AA	DM27221AC
pin A11	pin E15
pin A10	pin E14
pin J14	
pin J13	

- (b) If you find an electrical short at any of the above pins, then do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK 824

D633W103-ARO

Page 281
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- 1) Disconnect the appropriate connector from the table below.

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27221AA		
J13 or J14	DM27239B	COL FORCE XDCR-R2, M27239
A10 or A11	DM27236	COL POSN XDCR-R3, M27236
DM27221AC		
E14 or E15	DM27212A	ELEV PCU-RIB, M27212

- 2) Do a check for an electrical short to structure ground from connectors DM27221AA and DM27221AC again (WDM 27-31-14).
- 3) If you continue to find an electrical short at connector DM27221AA or DM27221AC, then do these steps:
- a) Repair the wiring between these pins of connector DM27221AA or DM27221AC (for the ACE-R) and connector that was previously disconnected above(WDM 27-31-14).

DM27221AA	DM27239B
pin J13	pin 8
pin J14	pin 9

DM27221AA	DM27236
pin A10	pin 8
pin A11	pin 9

DM27221AC	DM27212A
pin E14	pin 12
pin E15	pin 13

- b) Re-connect connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin E14 or E15 of connector DM27221AC or at pin A10, A11, J13 or J14 of connector DM27221AA, then do these steps:
- a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
DM27221AA		

EFFECTIVITY
ARO ALL

27-02 TASK 824

D633W103-ARO

Page 282
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
J13 or J14	COL FORCE XDCR ASSY-R2, M27239	Column Force Transducer Removal, AMM TASK 27-31-08-000-801 Column Force Transducer Installation, AMM TASK 27-31-08-400-801
A10 or A11	COL POSN XDCR-R3, M27236	Column Position Transducer Removal, AMM TASK 27-31-04-000-801 Column Position Transducer Installation, AMM TASK 27-31-04-400-801
DM27221AC		
E14 or E15	ELEVATOR PCU-RIB, M27212	Elevator Power Control Units (PCU) Removal - AMM TASK 27-31-09-000-801 Elevator Power Control Units (PCU) Installation - AMM TASK 27-31-09-400-801

- b) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- c) Do the Repair Confirmation procedure at the end of this task.

- (c) If you do not find an electrical short at connector DM27221AA or DM27221AC, then continue.

- (3) Do this check for a short between the wires of the excitation circuit for the right 2 column force, right 3 column position, and right inboard elevator PCU position transducers:

- (a) Measure the resistance between the following pins of connector DM27221AA and DM27221AC (for the ACE-R) at the E5-2 shelf (WDM 27-31-14).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

At connector:	Between the pins:
DM27221AA	J13 and J14
	A10 and A11
DM27221AC	E14 and E15

- (b) If the resistance between any of the above pins of connector DM27221AA or DM27221AC is less than 10 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27221AA		
J13 or J14	DM27239B	COL FORCE XDCR ASSY-R2, M27239
A10 or A11	DM27236	COL POSN XDCR-R3, M27236

EFFECTIVITY
ARO ALL

27-02 TASK 824

D633W103-ARO

Page 283
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

(Continued)

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27221AC		
E14 or E15	DM27212A	ELEV PCU-RIB, M27212

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27221AA or DM27221AC (WDM 27-31-14).
- 3) If you still find continuity between the pins that previously showed low resistance on connector DM27221AA or DM27221AC (for the ACE-R), then do these steps:
 - a) Repair the wiring between these pins of connector DM27221AA or DM27221AC (for the ACE-R) at the E5-2 and the connector that was previously disconnected above (WDM 27-31-14).

DM27221AA	DM27239B
pin J13	pin 8
pin J14	pin 9

DM27221AA	DM27236
pin A10	pin 8
pin A11	pin 9

DM27221AC	DM27212A
pin E14	pin 12
pin E15	pin 13

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- NOTE: Make sure you do the ACE Installation Test.
- <1> Remove the tag from the ACE-R.
- d) Do the Repair Confirmation procedure at the end of this task.
 - 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27221AA or DM27221AC, then do these steps:

- a) Replace the appropriate equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
DM27221AA		
J13 or J14	COL FORCE XDCR ASSY-R2, M27239	Column Force Transducer Removal, AMM TASK 27-31-08-000-801 Column Force Transducer Installation, AMM TASK 27-31-08-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 824

D633W103-ARO

Page 284
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
A10 or A11	COL POSN XDCR-R3, M27236	Column Position Transducer Removal, AMM TASK 27-31-04-000-801 Column Position Transducer Installation, AMM TASK 27-31-04-400-801
DM27221AC		
E14 or E15	ELEVATOR PCU-RIB, M27212	Elevator Power Control Units (PCU) Removal - AMM TASK 27-31-09-000-801 Elevator Power Control Units (PCU) Installation - AMM TASK 27-31-09-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- c) Do the Repair Confirmation procedure at the end of this task.

- (4) Do this task for obvious electrical faults in the applicable PCU wiring. Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, do this task to check for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Column Position
- (b) 27-Primary Flight Controls, System Test, Column Force Transducer
- (c) 27-Primary Flight Controls, System Test, Right Elevator Position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

825. Multiple Transducers (Group B Fault L2) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13017.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
- (a) Monitor the following indications on the flight control maintenance pages 1 (on the MFD) (SSM 27-02-15)

EFFECTIVITY
ARO ALL

27-02 TASKS 824-825

D633W103-ARO

Page 285
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Indication	Page
F/O PEDAL POSITION 2	FLIGHT CONTROL PG 1/3
F/O COLUMN POSITION 1	FLIGHT CONTROL PG 1/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means the data is invalid.

NOTE: For example, if the value shown for F/O COLUMN POSITION 1 is "00X", record "F/O COLUMN POSITION 1". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
- 27-Primary Flight Controls, System Test, Pedal Position
 - 27-Primary Flight Controls, System Test, Column Position.
 - If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
 - If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
 - Monitor the airplane to see if the fault occurs on the subsequent flights.
 - If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- Put a tag that reads "SUSPECT" on the left 2 actuator control electronics (ACE-L2).
- Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
- Remove the ACE-C and the ACE-L2. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-L2 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:
- 27-Primary Flight Controls, System Test, Pedal Position.
 - 27-Primary Flight Controls, System Test, Column Position
- (f) If maintenance message 27-13017 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK 825

D633W103-ARO

Page 286
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- 3) Remove the ACE tagged SUSPECT from the airplane.
- 4) Install a new ACE in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- (g) Do the Repair Confirmation procedure at the end of this task.
- (h) If maintenance message 27-13017 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
- (i) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (j) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- (k) Remove the tag from the ACE-C.
- (2) Do this check of the excitation circuits for the right 2 pedal position, and right 1 column position transducers:
NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
- (a) Do a check for an electrical short to structure ground from pins C5, B5, J8 or K8 of connector DM27122AA (for the ACE-L2) at the E1-1 shelf (WDM 27-21-12)(WDM 27-31-13).
- (b) If you find an electrical short at any of the above pins, then do these steps:
 - 1) Disconnect the appropriate connector from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27122AA		
C5 or B5	DM27238	PED POSN XDCR-R2, M27238
J8 or K8	DM27234	COL POSN XDCR-R1, M27234

- 2) Do a check for an electrical short to structure ground from connector DM27122AA again (WDM 27-21-12)(WDM 27-31-13).
- 3) If you continue to find an electrical short at connector DM27122AA, then do these steps:
 - a) Repair the wiring between these pins of connector DM27122AA (for the ACE-L2) at the E1-1 shelf and the connector that was previously disconnected above (WDM 27-21-12)(WDM 27-31-13):

EFFECTIVITY
ARO ALL

27-02 TASK 825

D633W103-ARO

Page 287
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27122AA	DM27238
pin C5	pin 8
pin B5	pin 9

DM27122AA	DM27234
pin J8	pin 9
pin K8	pin 8

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L2.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find an electrical short at pin C5 or B5 of connector DM27122AA or at pin J8 or K8 of connector DM27122AC, then do these steps:
- a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
DM27122AA		
C5 or B5	PEDAL POSITION XDCR-R2, M27238	Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801 Rudder Pedal Position Transducers Installation, AMM TASK 27-21-04-400-801
J8 or K8	COL POSN XDCR-R1, M27234	Column Position Transducer Removal, AMM TASK 27-31-04-000-801 Column Position Transducer Installation, AMM TASK 27-31-04-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L2.

- c) Do the Repair Confirmation procedure at the end of this task.
- (c) If you do not find an electrical short at connector DM27122AA, then continue.
- (3) Do this check for a short between the wires of the excitation circuit for the right 2 pedal position and right 1 column position transducers:
- (a) Measure the resistance between the following pins of connector DM27122AA at the E1-1 shelf (WDM 27-21-12)(WDM 27-31-13).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

EFFECTIVITY
ARO ALL

27-02 TASK 825

D633W103-ARO

Page 288
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

At connector:	Between the pins:
DM27122AA	C5 and B5
	J8 and K8

- (b) If the resistance between any of the above pins of connector DM27122AA is less than 10 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27122AA		
C5 and B5	DM27238	PED POSN XDCR-R2, M27238
J8 and K8	DM27234	COL POSN XDCR-R1, M27234

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27122AA at the E1-1 shelf (WDM 27-21-12)(WDM 27-31-13).
- 3) If you still find continuity between the pins that previously showed low resistance on connector DM27122AA, then do these steps:
- a) Repair the wiring between these pins of connector DM27122AA at the E1-1 shelf and the connector that was previously disconnected above (WDM 27-21-12)(WDM 27-31-13):

DM27122AA	DM27238
pin C5	pin 8
pin B5	pin 9

DM27122AA	DM27234
pin J8	pin 9
pin K8	pin 8

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- NOTE:** Make sure you do the ACE Installation Test.
- <1> Remove the tag from the ACE-L2.
- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27122AA, then do these steps:
- a) Replace the appropriate equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Do these tasks:
DM27122AA		

EFFECTIVITY
ARO ALL

27-02 TASK 825

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 289
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the low resistance was found at pins:	Replace this equipment:	Do these tasks:
C5 or B5	PED POSN XDCR-R2, M27238	Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801 Rudder Pedal Position Transducers Installation, AMM TASK 27-21-04-400-801
J8 or K8	COL POSN XDCR-R1, M27234	Column Position Transducer Removal, AMM TASK 27-31-04-000-801 Column Position Transducer Installation, AMM TASK 27-31-04-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L2.

- c) Do the Repair Confirmation procedure at the end of this task.

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
(b) If no faults are found with the PCU wiring, then do this task for applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802
(c) If a fault is found, repair or replace the applicable wiring.
(d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
(a) 27-Primary Flight Controls, System Test, Pedal Position
(b) 27-Primary Flight Controls, System Test, Column Position.
(2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

826. Multiple Transducers (Group B Fault C) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13018.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
(a) Monitor the following indications on the flight control maintenance pages 1 and 2 (on the MFD)(SSM 27-02-15)

EFFECTIVITY
ARO ALL

27-02 TASKS 825-826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 290
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Indication	Page
CAPT PEDAL POSITION 2	FLIGHT CONTROL PG 1/3
F/O COLUMN POSITION 2	FLIGHT CONTROL PG 1/3
UPPER RUDDER PCU	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means the data is invalid.

NOTE: For example, if the value shown for F/O COLUMN POSITION 2 is "00X", record "F/O COLUMN POSITION 2". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
- 27-Primary Flight Controls, System Test, Pedal Position
 - 27-Primary Flight Controls, System Test, Column Position
 - 27-Primary Flight Controls, System Test, Rudder Position.
 - If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
 - If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
 - Monitor the airplane to see if the fault occurs on the subsequent flights.
 - If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- Put a tag that reads "SUSPECT" on the center actuator control electronics (ACE-C).
- Put a tag that reads "OK" on the right actuator control electronics (ACE-R).
- Remove the ACE-C and the ACE-R. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- Install the ACE tagged SUSPECT in the ACE-R rack location, and install the ACE tagged OK in the ACE-C rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:
- 27-Primary Flight Controls, System Test, Pedal Position
 - 27-Primary Flight Controls, System Test, Column Position
 - 27-Primary Flight Controls, System Test, Rudder Position.

EFFECTIVITY
ARO ALL

27-02 TASK 826

D633W103-ARO

Page 291
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (f) If maintenance message 27-13018 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:
- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - 2) Install the ACE tagged OK in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 5) Do the Repair Confirmation procedure at the end of this task.
- (g) If maintenance message 27-13018 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (i) Install the ACE tagged OK in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- (j) Remove the tag from the ACE-R.
- (2) Do this check of the excitation circuits for the left 2 pedal position, right 2 column position and upper rudder PCU position transducers:
- NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
- (a) Do a check for an electrical short to structure ground from the following pins of connectors DM27321AA and DM27321AC (for the ACE-C) at the E2-5 shelf (WDM 27-21-11)(WDM 27-31-12).

DM27321AA	DM27321AC
pin B5	pin K3
pin C5	pin K4
pin J8	
pin K8	

- (b) If you find an electrical short at any of the above pins, then do these steps:

- 1) Disconnect the appropriate from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27321AA		
C5 or B5	DM27138	LPED POSN XDCR-L2, M27138
K8 or J8	DM27235	COL POSN XDCR-R2, M27235
DM27321AC		

EFFECTIVITY
ARO ALL

27-02 TASK 826

D633W103-ARO

Page 292
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
K3 or K4	DM27007A	Rudder PCU - Upper, M27007

- 2) Do a check for an electrical short to structure ground from connectors DM27321AA and DM27321AC again (WDM 27-21-11)(WDM 27-31-12).
- 3) If you continue to find an electrical short at connector DM27321AA or DM27321AC, then do these steps:
 - a) Repair the wiring between these pins of connector DM27321AA or DM27321AC (for the ACE-C) and connector that was previously disconnected above (WDM 27-21-11)(WDM 27-31-12).

DM27321AA	DM27138
pin C5	pin 8
pin B5	pin 9

DM27321AA	DM27235
pin K8	pin 8
pin J8	pin 9

DM27321AC	DM27007A
pin K3	pin 12
pin K4	pin 13

- b) Re-connect connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: Make sure you do the ACE Installation Test.
<1> Remove the tag from the ACE-C.
 - d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin C5, B5, K8 or J8 of connector DM27321AA or at pin K3 or K4 of connector DM27321AC, then do these steps:
 - a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
DM27321AA		
C5 or B5	PEDAL POS XDCR-L2, M27138	Rudder Pedal Position Transducer Removal, AMM TASK 27-21-04-000-801 Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 826

D633W103-ARO

Page 293
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
K8 or J8	COL POSN XDCR-R2, M27235	Column Position Transducer Removal, AMM TASK 27-31-04-000-801 Column Position Transducer Installation, AMM TASK 27-31-04-400-801
DM27321AC		
K3 or K4	RUDDER PCU -UPPER, M27007	Rudder Power Control Units (PCU) Removal - AMM TASK 27-21-11-000-801 Rudder Power Control Units (PCU) Installation - AMM TASK 27-21-11-400-801

- b) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C.

- c) Do the Repair Confirmation procedure at the end of this task.

- (c) If you do not find an electrical short at connector DM27321AA or DM27321AC, then continue.

- (3) Do this check for a short between the wires of the excitation circuit for the left 2 pedal position, right 2 column position and upper rudder PCU position transducers:

- (a) Measure the resistance between the following pins of connector DM27321AA and DM27321AC (for the ACE-C) at the E2-5 shelf (WDM 27-21-11)(WDM 27-31-12).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

At connector:	Between the pins:
DM27321AA	C5 and B5
	K8 and J8
DM27321AC	K3 and K4

- (b) If the resistance between any of the above pins of connector DM27321AA or DM27321AC is less than 10 ohms, then do these steps:

- 1) Disconnect the applicable connector from the table below:

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27321AA		
C5 or B5	DM27138	PED POSN XDCR-L2, M27138
K8 or J8	DM27235	COL POSN XDCR-R2, M27235
DM27321AC		
K3 or K4	DM27007A	Rudder PCU - Upper,, M27007

EFFECTIVITY
ARO ALL

27-02 TASK 826

D633W103-ARO

Page 294
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27321AA or DM27321AC (WDM 27-21-11)(WDM 27-31-12).
- 3) If you still find continuity between the pins that previously showed low resistance on connector DM27321AA or DM27321AC (for the ACE-C) at the E2-5 shelf, then do these steps:
 - a) Repair the wiring between these pins of connector DM27321AA or DM27321AC (for the ACE-C) and the connector that previously disconnected above (WDM 27-21-11)(WDM 27-31-12).

DM27321AA	DM27138
pin C5	pin 8
pin B5	pin 9

DM27321AA	DM27235
pin K8	pin 8
pin J8	pin 9

DM27321AC	DM27007A
pin K3	pin 12
pin K4	pin 13

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from ACE-C

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27321AA or DM27321AC, then do these steps:
 - a) Replace the appropriate equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
DM27321AA		
C5 or B5	PEDAL POS XDCR-L2, M27138	Rudder Pedal Position Transducer Removal, AMM TASK 27-21-04-000-801 Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801
K8 or J8	COL POSN XDCR-R2, M27235	Column Position Transducer Removal, AMM TASK 27-31-04-000-801 Column Position Transducer Installation, AMM TASK 27-31-04-400-801
DM27321AC		

EFFECTIVITY
ARO ALL

27-02 TASK 826

D633W103-ARO

Page 295
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
K3 or K4	RUDDER PCU -UPPER, M27007	Rudder Power Control Units (PCU) Removal - AMM TASK 27-21-11-000-801 Rudder Power Control Units (PCU) Installation - AMM TASK 27-21-11-400-801

- b) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C.

- c) Do the Repair Confirmation procedure at the end of this task.

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
(b) If no faults are found, then do this task for applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
(c) If a fault is found, repair or replace the applicable wiring.
(d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
(a) 27-Primary Flight Controls, System Test, Pedal Position
(b) 27-Primary Flight Controls, System Test, Column Position
(c) 27-Primary Flight Controls, System Test, Rudder Position.
(2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

827. Multiple Transducers (Group B Fault R) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13019.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
(a) Monitor the following indications on the flight controls maintenance pages 1 and 2 (on the MFD) (SSM 27-02-15):

Indication	Page
LWR RUDDER PCU	FLIGHT CONTROL PG 2/3

EFFECTIVITY
ARO ALL

27-02 TASKS 826-827

D633W103-ARO

Page 296
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Indication	Page
CAPT COLUMN POSITION 3	FLIGHT CONTROL PG 1/3
F/O PEDAL POSITION 1	FLIGHT CONTROL PG 1/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for CAPT COLUMN POSITION 3 is "00X", record "CAPT COLUMN POSITION 3". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.

- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:

- 27-Primary Flight Controls, System Test, Pedal Position
 - 27-Primary Flight Controls, System Test, Column Position
 - 27-Primary Flight Controls, System Test, Rudder Position.
- (d) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
- (e) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
- Monitor the airplane to see if the fault occurs on the subsequent flights.
 - If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- Put a tag that reads "SUSPECT" on the right actuator control electronics (ACE-R).
- Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
- Remove the ACE-C and the ACE-R. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-R rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:

- 27-Primary Flight Controls, System Test, Pedal Position
- 27-Primary Flight Controls, System Test, Column Position
- 27-Primary Flight Controls, System Test, Rudder Position.

EFFECTIVITY
ARO ALL

27-02 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 297
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (f) If maintenance message 27-13019 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:
- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 5) Do the Repair Confirmation procedure at the end of this task.
- (g) If maintenance message 27-13019 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (i) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- (j) Remove the tag from the ACE-C.
- (2) Do this check of the excitation circuits for the lower rudder PCU position, right 1 pedal position and left 3 column position transducers:
- NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
- (a) Do a check for an electrical short to structure ground from the following pins of connectors DM27221AA and DM27221AC (for the ACE-R) at the E5-2 shelf (WDM 27-21-13)WDM 27-31-14.

DM27221AA	DM27221AC
pin B5	pin K3
pin C5	pin K4
pin J8	
pin K8	

- (b) If you find an electrical short at any of the above pins, then do these steps:
- 1) Disconnect the appropriate connector from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27221AA		
C5 or B5	DM27237	PED POSN XDCC - R1, M27237
K8 or J8	DM27136	COL POSN XDCC-L3, M27136
DM27221AC		

EFFECTIVITY
ARO ALL

27-02 TASK 827

D633W103-ARO

Page 298
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
K3 or K4	DM27009A	RUDDER PCU-LWR, M27009

- 2) Do a check for an electrical short to structure ground from connector DM27221AA and DM27221AC again (WDM 27-21-13)(WDM 27-31-14).
- 3) If you continue to find an electrical short at connector DM27221AA or DM27221AC, then do these steps:
 - a) Repair the wiring between these pins of connector DM27221AA or DM27221AC (for the ACE-R) and the connector that was previously disconnected above (WDM 27-21-13)(WDM 27-31-14).

DM27221AA	DM27237
pin C5	pin 8
pin B5	pin 9

DM27221AA	DM27136
pin K8	pin 8
pin J8	pin 9

DM27221AC	DM27009A
pin K3	pin 12
pin K4	pin 13

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: Make sure you do the ACE Installation Test.
<1> Remove the tag from the ACE-R.
 - d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin C5, B5, K8 or J8 of connector DM27221AA or at pin K3 or K4 of connector DM27221AC, then do these steps:
 - a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
DM27221AA		
B5 or C5	PED POSN XDCR-R1, M27237	Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801 Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 827

D633W103-ARO

Page 298.1
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
J8 or K8	COL POSN XDCR-L3, M27136	Column Position Transducers Removal, AMM TASK 27-31-04-000-801 Column Position Transducers Installation, AMM TASK 27-31-04-400-801
DM27221AC		
K3 or K4	RUDDER PCU-LWR, M27009	Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801 Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801

- b) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task:

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- c) Do the Repair Confirmation procedure at the end of this task.

- (c) If you do not find an electrical short at connector DM27221AA or DM27221AC, then continue.

- (3) Do this check for a short between the wires of the excitation circuit for the right 1 pedal position, left 3 column position and the rudder PCU position transducers:

- (a) Measure the resistance between the following pins of connector DM27221AA and DM27221AC (for the ACE-R) at the E5-2 shelf (WDM 27-21-13)(WDM 27-31-14).

At connector:	Between the pins:
DM27221AA	C5 and B5
	K8 and J8
DM27122AA	K3 and K4

- (b) If the resistance between any of the above pins of connector DM27221AA or DM27221AC is less than 10 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below.

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27221AA		
C5 and B5	DM27029B	PEDAL POSN XDCR -R1, M27237
K8 and J8	DM27009	COLUMN POSN XDCR-L3, M27136
DM27221AC		
K3 and K4	DM27119	RUDDER PCU-LWR, m27009

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27221AA or DM27221AC (for the ACE-R)(WDM 27-21-13)WDM 27-31-14.

EFFECTIVITY
ARO ALL

27-02 TASK 827

D633W103-ARO

Page 298.2
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If you still find continuity between the pins that previously showed low resistance on connector DM27221AA or DM27221AC, then do these steps:

- a) Repair the wiring between these pins of connector DM27221AA or DM27221AC (for the ACE-R) and the connector that previously disconnected above (WDM 27-21-13)WDM 27-31-14.

DM27221AA	DM27237
pin C5	pin 8
pin B5	pin 9

DM27221AA	DM27136
pin K8	pin 8
pin J8	pin 9

DM27221AC	DM27009A
pin K3	pin 12
pin K4	pin 13

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C.

- d) Do the Repair Confirmation procedure at the end of this task.

- 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27221AA or DM27221AC, then do these steps:

- a) Replace the appropriate equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
DM27221AA		
C5 and B5	Pedal Position Transducer - R1,M27237	Rudder Pedal Position Transducers - Removal, AMM TASK 27-21-04-000-801 Rudder Pedal Position Transducers - Installation, AMM TASK 27-21-04-400-801
K8 and J8	Column Position Transducer - L3, M27136	Column Position Transducer - Removal, AMM TASK 27-31-04-000-801 Column Position Transducer - Installation, AMM TASK 27-31-04-400-801
DM27221AC		
K3 and K4	Rudder PCU - LWR, M27009	Rudder PCU - Removal, AMM TASK 27-21-11-000-801 Rudder PCU - Installation, AMM TASK 27-21-11-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 827

D633W103-ARO

Page 298.3
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- b) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- c) Do the Repair Confirmation procedure at the end of this task.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring. Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found, do this task to check for applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Pedal Position
 - (b) 27-Primary Flight Controls, System Test, Column Position
 - (c) 27-Primary Flight Controls, System Test, Rudder Position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

828. Multiple Transducers (Group C Fault L2) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13021.

B. Description

- (1) Multiple Transducers, that share the same Excitation Power Source have feedback problems.
- (2) This is most likely due to a single failure.

C. Possible Causes

- (1) Actuator Control Electronics (ACE) - L2, M27122
- (2) Flaperon PCU - RIB, M27210
- (3) FDR Wheel Force Transducer, M27014
- (4) Excitation Wiring
- (5) Power Control Unit

D. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
 - (a) On the Multi-Function Display (MFD), monitor the following indication on the FLIGHT CONTROLS Maintenance Page 2 (SSM 27-02-15):

EFFECTIVITY
ARO ALL

27-02 TASKS 827-828

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.4
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

Indication	Page
RIGHT INBD FLAPERON POSITION	FLIGHT CONTROL PG 2/3

- 1) If an "X" shows after the Transducer value, the data is invalid.

NOTE: For example, if the value shown for RIGHT INBD FLAPERON POSITION is "00X", record "RIGHT INBD FLAPERON POSITION". This information can be useful during further troubleshooting.

- (b) Also, monitor this indication on the FLIGHT CONTROLS Maintenance Page 1 (SSM 27-02-15):

Indication	Page
FDR CAPT WHEEL FORCE	FLIGHT CONTROL PG 1/3

- 1) If an "X" shows after the Transducer value, the data is invalid.

NOTE: For example, if the value shown for FDR CAPT WHEEL FORCE is "00X", record "FDR CAPT WHEEL FORCE". This information can be useful during further troubleshooting.

- (2) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - (a) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the Ground Test Display, then there was an intermittent problem.
 - 1) Monitor the airplane to see if the problem occurs on the subsequent flights.
 - 2) If the problem occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

E. Fault Isolation Procedure

- (1) Do this exchange check of the ACEs:

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the problem, then apply Hydraulic Power to all 3 Hydraulic Systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- (a) Put a tag that reads "SUSPECT" on the Left 2 ACE (ACE-L2).
- (b) Put a tag that reads "OK" on the Center ACE (ACE-C).
- (c) Remove the ACE-C and the ACE-L2. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Install the ACE tagged "SUSPECT" in the ACE-C Rack location, and install the ACE tagged "OK" in the ACE-L2 Rack location. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If maintenance message 27-13021 does not show on the Ground Test Display (after the last test), the ACE tagged "SUSPECT" is defective. Do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK 828

D633W103-ARO

Page 298.5
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) Remove the ACE tagged "SUSPECT" and the ACE tagged "OK". This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - b) Install the ACE tagged "OK" in the ACE-C Rack location. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure that you do the ACE Installation Test.
 - c) Remove the ACE tagged "SUSPECT" from the airplane.
 - d) Install a new ACE in the ACE-L2 Rack location. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure that you do the ACE Installation Test.
 - e) Do the Repair Confirmation at the end of this task.
- 2) If maintenance message 27-13021 still shows on the Ground Test Display, the ACE tagged SUSPECT is serviceable. Do these steps:
- a) Remove the ACE tagged "SUSPECT" and the ACE tagged "OK". This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - b) Install the ACE tagged "OK" in the ACE-C Rack location. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure that you do the ACE Installation Test.
 - c) Remove the tag from the ACE-C.
- (2) Do this check of the Excitation Circuit for the RIB Flaperon PCU Transducer, M27210 (WDM 27-11-18):
- (a) Do a check for an electrical short to structure ground from pin K3 or K4 of connector DM27122AA (for the ACE-L2) at the E1-1.
 - 1) If you find an electrical short at pin K3 or K4, then do these steps:
 - a) Disconnect the connector DM27210 from the RIB Flaperon PCU Transducer.
 - b) Do a check for an electrical short to structure ground from pin K3 or K4 of connector DM27122AA again.
 - <1> If you still have an electrical short at connector DM27122AA, then examine and repair the wiring between the pins indicated below:

DM27122AA	DM27110
pin K3	pin 12
pin K4	pin 13
 - <a> Re-connect connector DM27210.
 - Install the ACE tagged "SUSPECT" in the ACE-L2 Rack location. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: Make sure that you do the ACE Installation Test
 - <c> Remove the tag from the ACE-L2.
 - <d> Do the Repair Confirmation at the end of this task.
 - <2> If you do not have an electrical short at connector DM27122AA anymore, then replace the RIB Flaperon PCU Transducer, M27210. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASK 828

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.6
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - <a> Install the ACE tagged "SUSPECT" in the ACE-L2 Rack location. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: Make sure that you do the ACE Installation Test
 - Remove the tag from the ACE-L2.
 - <c> Do the Repair Confirmation at the end of this task.
- 2) If you do not find an electrical short at connector DM27122AA, then continue.
- (3) Do this check of the Excitation Circuits for the Flight Data Recorder Wheel Force and Right Flaperon PCU Transducers (WDM 27-11-20):
- (a) Do a check for an electrical short to structure ground from the pin B1 or B2 of connector DM27122AC.
- 1) If you find an electrical short at pin B1 or B2 of connector DM27122AC, then do these steps:
- a) Disconnect the connector DM27000 from the FDR Wheel Force XDCR, M27014.
 - b) Do a check for an electrical short to structure ground from connector DM27122AC again.
- <1> If you still have an electrical short at connector DM27122AC, then examine and repair the wiring between the pins indicated below:
- | DM27122AC | DM27000 |
|--------------|---------|
| pin B1 | pin 2 |
| pin B2 | pin 1 |
- <a> Re-connect connector DM27000.
- Install the ACE tagged "SUSPECT" in the ACE-L2 Rack location. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: Make sure that you do the ACE Installation Test
- <c> Remove the tag from the ACE-L2.
- <d> Do the Repair Confirmation at the end of this task.
- <2> If you do not have an electrical short at connector DM27122AA anymore, then replace the Wheel Force Transducer, M27014. These are the tasks:
- Wheel Force Transducer - Removal, AMM TASK 27-11-08-000-801
 - Wheel Force Transducer - Installation, AMM TASK 27-11-08-400-801
 - <a> Install the ACE tagged "SUSPECT" in the ACE-L2 Rack location. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: Make sure that you do the ACE Installation Test
 - Remove the tag from the ACE-L2.

EFFECTIVITY
ARO ALL

27-02 TASK 828

D633W103-ARO

Page 298.7
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

<c> Do the Repair Confirmation at the end of this task.

- 2) If you do not find an electrical short at connector DM27122AC, then continue.
- (4) Do a Resistance check as follows to identify a possible short between the wires of the Excitation Circuit for the RIB Flaperon PCU Transducer, M27210 (WDM 27-11-18):

DM27122AA	DM27122AA	Correct Resistance
pin K3	pin K4	> 10 Ω

- (a) If the Resistance between pins K3 and K4 of connector DM27122AA is < 10 Ω , do these steps:
- 1) Disconnect connector DM27210 from the RIB Flaperon PCU.
 - 2) Do a continuity check between pins K3 and K4 of connector DM27122AA, that previously showed Low Resistance.
 - a) If you still find continuity, examine and repair the wiring between the indicated pins below:

DM27122AA	DM27210
pin K3	pin 12
pin K4	pin 13

<1> Re-connect connector DM27210.

<2> Install the ACE tagged SUSPECT in the ACE-L2 Rack location. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure that you do the ACE Installation Test.

<3> Remove the tag from the ACE-L2.

<4> Do the Repair Confirmation at the end of this task.

- b) If you do not find continuity, then replace the RIB Flaperon PCU Transducer, M27210. These are the tasks:

- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
- Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801

<1> Install the ACE tagged "SUSPECT" in the ACE-L2 Rack location. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure that you do the ACE Installation Test

<2> Remove the tag from the ACE-L2.

<3> Do the Repair Confirmation at the end of this task.

- (b) If the Resistance between pins K3 and K4 of connector DM27122AA is > 10 Ω , continue.

- (5) Do a Resistance check as follows to identify a possible short between the wires of the FDR Wheel Force, M27014 Excitation Circuit (WDM 27-11-20):

DM27122AC	DM27122AC	Correct Resistance
pin B1	pin B2	> 10 Ω

- (a) If the Resistance between pins B1 and B2 of connector DM27122AC is < 10 Ω , do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK 828

D633W103-ARO

Page 298.8
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Disconnect the FDR Wheel Force connector from DM27000.
- 2) Do a continuity check between pins B1 and B2 of connector DM27122AC, that previously showed Low Resistance.
 - a) If you still find continuity, examine and repair the wiring between the indicated pins below:

DM27122AC	DM27000
pin B1	pin 2
pin B2	pin 1

<1> Re-connect connector DM27000.

<2> Install the ACE tagged "SUSPECT" in the ACE-L2 Rack location. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure that you do the ACE Installation Test.

<3> Remove the tag from the ACE-L2.

<4> Do the Repair Confirmation at the end of this task.

- b) If you do not find continuity, then replace the Wheel Force Transducer, M27014. These are the tasks:

- Wheel Force Transducer - Removal, AMM TASK 27-11-08-000-801
- Wheel Force Transducer - Installation, AMM TASK 27-11-08-400-801

<1> Install the ACE tagged "SUSPECT" in the ACE-L2 Rack location. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure that you do the ACE Installation Test.

<2> Remove the tag from the ACE-L2.

<3> Do the Repair Confirmation at the end of this task.

- (b) If the Resistance between pins B1 and B2 of connector DM27122AC is $> 10 \Omega$, continue.

- (6) Do this task for obvious electrical faults in the applicable PCU Wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

- (a) If you find a problem, replace the applicable PCU.

- (b) If you find no problems, do this task to examine the applicable PCU Airplane Wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.

- 1) If you find a problem, repair or replace the applicable wiring.
- 2) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - (a) If the maintenance message does not show on the Ground Test Display, then you corrected the problem.

EFFECTIVITY
ARO ALL

27-02 TASK 828

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.9
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

829. Multiple Transducers (Group C Fault C) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13022.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
- (a) Monitor the following indications on the flight controls maintenance pages 1 and 2 (on the MFD) (SSM 27-02-15):

Indication	Page
F/O WHEEL POSITION 2	FLIGHT CONTROL PG 1/3
CENTER STABILIZER POSITION	FLIGHT CONTROL PG 2/3
R OUTBD FLAPERON POSITION	FLIGHT CONTROL PG 2/3

- 1) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for F/O WHEEL POSITION 2 is "00X", record "F/O WHEEL POSITION 2". This information may be useful during further troubleshooting

- 2) Do the Fault Isolation Procedure below.

- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Stabilizer System
- (b) 27-Primary Flight Controls, System Test, Wheel Position
- (c) 27-Primary Flight Controls, System Test, Right Flaperon Position.
- (d) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
- (e) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- (a) Put a tag that reads "SUSPECT" on the center actuator control electronics (ACE-C).
- (b) Put a tag that reads "OK" on the left 1 actuator control electronics (ACE-L1).

EFFECTIVITY
ARO ALL

27-02 TASKS 828-829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.10
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Remove the ACE-C and the ACE-L1. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Install the ACE tagged SUSPECT in the ACE-L1 rack location, and install the ACE tagged OK in the ACE-C rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Stabilizer System
 - 2) 27-Primary Flight Controls, System Test, Wheel Position
 - 3) 27-Primary Flight Controls, System Test, Right Flaperon Position.
- (f) If maintenance message 27-13022 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - 2) Install the ACE tagged OK in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 5) Do the Repair Confirmation procedure at the end of this task.
- (g) If maintenance message 27-13022 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (i) Install the ACE tagged OK in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- (j) Remove the tag from the ACE-L1.

- (2) Do this check of the excitation circuit for the center stabilizer position, R2 wheel position, and right outboard flaperon PCU transducers:

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

- (a) Do a check for an electrical short to structure ground from the the following pins of connectors DM27321AC and DM27321AA (for the ACE-C) at the E2-5 shelf (WDM 27-41-11)(WDM 27-11-12)(WDM 27-11-17).

DM27321AC	DM27321AA
pin B1	pin K3
pin B2	pin K4

EFFECTIVITY
ARO ALL

27-02 TASK 829

D633W103-ARO

Page 298.11
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

DM27321AC	DM27321AA
pin E1	
pin E1	

(b) If you find an electrical short at the above pins, then do these steps:

1) Disconnect the appropriate connector from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27321AC		
B1 or B2	DM27030	STAB POSN MDL-C, M27030
E1 or D1	DM27232	WHEEL POSN XDCR-R2, M27232
DM27321AA		
K3 or K4	DM27209	Flaperon PCU - ROB, M27209

- 2) Do a check for an electrical short to structure ground from connector DM27321AC and DM27321AA again (WDM 27-41-11)(WDM 27-11-12)(WDM 27-11-17).
- 3) If you continue to find an electrical short at connector DM27321AC or DM27321AA, then do these steps:
 - a) Repair the wiring between these pins of connector DM27321AC or DM27321AA (for the ACE-C) and the connector that was previously disconnected above (WDM 27-41-11)(WDM 27-11-12)(WDM 27-11-17).

DM27321AC	DM27030
pin B1	pin 3
pin B2	pin 2

DM27321AC	DM27232
pin E1	pin 8
pin D1	pin 9

DM27321AA	DM27209
pin K3	pin 12
pin K4	pin 13

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: Make sure you do the ACE Installation Test
<1> Remove the tag from the ACE-C.
 - d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin B1, B2, E1 or D1 of connector DM27321AC or at pin K3 or K4 of DM27321AA, then do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.12
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
DM27321AC		
B1 or B2	STAB POSN MDL-C, M27030	Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801 Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801
E1 or D1	WHEEL POSN XDCR-R2, M27232	Wheel Force Transducer Removal, AMM TASK 27-11-08-00-801 Wheel Force Transducer Installation, AMM TASK 27-11-08-400-801
DM27321AA		
K3 or K4	FLAPERON PCU-ROB, M27209	Flaperon PCU - Removal, AMM TASK 27-11-12-000-801 Flaperon PCU - Installation, AMM TASK 27-11-12-400-801

b) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C.

c) Do the Repair Confirmation procedure at the end of this task.

(c) If you do not find an electrical short at connector DM27321AC or DM27321AA, then continue.

(3) Do this check for a short between the wires of the excitation circuit for the center stabilizer position module, R2 wheel position and right outboard flaperon PCU transducers:

(a) Measure the resistance between the following pins of connector DM27321AC and DM27321AA (for the ACE-C) at the E2-5 shelf (WDM 27-41-11)(WDM 27-11-12)(WDM 27-11-17).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

DM27321AC	DM27321AA
pin D1 and pin E1	pin K4 and pin K3
pin B2 and pin B1	

(b) If the resistance between any of the above pins of connector DM27321AC or DM27321AA is less than 10 ohms, then do these steps:

1) Disconnect the appropriate connector from the table below:

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27321AC		
B1 or B2	DM27030	STAB POSN MDL-C, M27030
E1 or D1	DM27232	WHEEL POSN XDCR-R2, M27232

EFFECTIVITY
ARO ALL

27-02 TASK 829

D633W103-ARO

Page 298.13
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

(Continued)

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27321AA		
K3 or K4	DM27209	Flaperon PCU - ROB, M27209

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27321AA or DM27321AC at the E2-5 shelf (WDM 27-41-11)(WDM 27-11-12)(WDM 27-11-17).
- 3) If you still find continuity between the pins that was previously showed low resistance on connector DM27321AC or DM27321AA, then do these steps:
 - a) Repair the wiring between these pins of connector DM27321AC or DM27321AA (for the ACE-C) at the E2-5 shelf and the connector that was previously disconnected above (WDM 27-41-11)(WDM 27-11-12)(WDM 27-11-17).

DM27321AC	DM27030
pin B1	pin 3
pin B2	pin 2

DM27321AC	DM27232
pin E1	pin 8
pin D1	pin 9

DM27321AA	DM27209
pin K3	pin 12
pin K4	pin 13

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27321AC or DM321AA, then do these steps:

If the low resistance was found at pin:	Replace this equipment:	Using these tasks:
DM27321AC		
B1 or B2	STAB POSN MDL-C, M27030	Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801 Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 829

D633W103-ARO

Page 298.14
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the low resistance was found at pin:	Replace this equipment:	Using these tasks:
E1 or D1	WHEEL POSN XDCR-R2, M27232	Wheel Force Transducer Removal, AMM TASK 27-11-08-00-801 Wheel Force Transducer Installation, AMM TASK 27-11-08-400-801
DM27321AA		
K3 or K4	Flaperon PCU - ROB, M27209	Flaperon PCU - Removal, AMM TASK 27-11-12-000-801 Flaperon PCU - Installation, AMM TASK 27-11-12-400-801

- a) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803 Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C.

- b) Do the Repair Confirmation procedure at the end of this task.

- (4) Do this task obvious electrical faults in the applicable PCU wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found, do this task to check for applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Stabilizer Position
 - (b) 27-Primary Flight Controls, System Test, Wheel Position
 - (c) 27-Primary Flight Controls, System Test, Right Flaperon Position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

830. Multiple Transducers (Group C Fault R) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13023.

EFFECTIVITY
ARO ALL

27-02 TASKS 829-830

D633W103-ARO

Page 298.15
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the following indications on the flight controls maintenance pages 1 and 2 (on the MFD) (SSM 27-02-15):

Indication	Page
RIGHT STABILIZER POSITION	FLIGHT CONTROL PG 2/3
CAPT WHEEL POSITION 3	FLIGHT CONTROL PG 1/3
LEFT INBD FLAPPERON POSITION	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for CAPT WHEEL POSITION 3 is "00X", record "CAPT WHEEL POSITION 3". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Stabilizer System
 - (b) 27-Primary Flight Controls, System Test, Wheel Position
 - (c) 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (d) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
 - (e) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- (a) Put a tag that reads "SUSPECT" on the right actuator control electronics (ACE-R).
 - (b) Put a tag that reads "OK" on the left 1 actuator control electronics (ACE-L1).
 - (c) Remove the ACE-R and the ACE-L1. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (d) Install the ACE tagged suspect in the ACE-L1 rack location, and install the ACE tagged OK in the ACE-R rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

EFFECTIVITY
ARO ALL

27-02 TASK 830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.16
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) Do these ground tests on the MAT:
- 1) 27-Primary Flight Controls, System Test, Stabilizer System
 - 2) 27-Primary Flight Controls, System Test, Wheel Position
 - 3) 27-Primary Flight Controls, System Test, Left Flaperon Position.
- (f) If maintenance message 27-13023 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:
- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - 2) Install the ACE tagged OK in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 5) Do the Repair Confirmation procedure at the end of this task.
- (g) If maintenance message 27-13023 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (i) Install the ACE tagged OK in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- (j) Remove the tag from the ACE-L1.
- (2) Do this check of the excitation circuits for the right stabilizer position module, L3 wheel position, and left inboard flaperon position transducers:
NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
- (a) Do a check for an electrical short to structure ground from the following pins of connector DM27221AC and DM27221AA (for the ACE-R) at the E5-2 shelf (WDM 27-11-14), (WDM 27-11-16), (WDM 27-41-13).

DM27221AC	DM27221AA
pin D1	pin K4
pin E1	pin K3
pin B2	
pin B1	

- (b) If you find an electrical short at the above pins, then do these steps:
- 1) Disconnect the appropriate connector from the table below:

EFFECTIVITY
ARO ALL

27-02 TASK 830

D633W103-ARO

Page 298.17
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27221AC		
D1 or E1	DM27133	WHEEL FORCE XDCR -L3, M27133
B2 or B1	DM27031	STABILIZER POS -RIGHT, M27031
DM27221AA		
K4 or K3	DM27110	FLAPERON PCU -LIB, M27110

- 2) Do a check for an electrical short to structure ground from connector DM27221AC and DM27221AA again (WDM 27-11-14), (WDM 27-11-16), (WDM 27-41-13).
- 3) If you continue to find an electrical short at connector DM27221AC or DM27221AA, then do these steps:
 - a) Repair the wiring between these pins of connector DM27221AC or DM27221AA (for the ACE-R) and the connector that was previously disconnected above (WDM 27-11-16), (WDM 27-11-14)(WDM 27-41-13).

DM27221AC	DM27133
pin E1	pin 8
pin D1	pin 9

DM27221AC	DM27031
pin B1	pin 3
pin B2	pin 2

DM27221AA	DM27110
pin K3	pin 12
pin K4	pin 13

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: Make sure you do the ACE Installation Test.
<1> Remove the tag from the ACE-R
 - d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin B1, B2, E1 or D1 of connector DM27221AC or at pin K4 or K3 of connector DM27221AA, then do these steps:
 - a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
DM27122AC		

EFFECTIVITY
ARO ALL

27-02 TASK 830

D633W103-ARO

Page 298.18
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the electrical short was found at pin:	Replace this equipment:	Do these tasks:
B1 or B2	STAB POSN MDL - R, M27031	Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801 Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801
D1 or E1	WHEEL POSN XDCR-L3, M27133	Wheel Force Transducer Removal, AMM TASK 27-11-08-000-801 Wheel Force Transducer Installation, AMM TASK 27-11-08-400-801
DM27122AA		
K3 or K4	FLAPERON PCU-LIB, M27110	Flaperon PCU - Removal, AMM TASK 27-11-12-000-801 Flaperon PCU - Installation, AMM TASK 27-11-12-400-801

- b) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- c) Do the Repair Confirmation procedure at the end of this task.

- (c) If you do not find an electrical short at connector DM27221AC or DM27221AA, then continue.

- (3) Do this check for a short between the wires of the excitation circuit for the right stabilizer position module, L3 wheel position and left inboard flaperon PCU transducers::

- (a) Measure the resistance between the following pins of connector DM27221AC and DM27221AA (for the ACE-R) at the E5-2 shelf (WDM 27-11-14), (WDM 27-11-16), (WDM 27-41-13).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

DM27221AC	DM27221AA
pin D1 and pin E1	pin K4 and pin K3
pin B2 and pin B1	

- (b) If the resistance between any of the above pins of connector DM27221AC or DM27221AA (for the (ACE-R) at the E5-2 shelf is less than 10 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27221AC		
D1 or E1	DM27133	WHEEL FORCE XDCR -L3, M27133
B2 or B1	DM27031	STABILIZER POS -RIGHT, M27031

EFFECTIVITY
ARO ALL

27-02 TASK 830

D633W103-ARO

Page 298.19
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

(Continued)

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27221AA		
K4 or K3	DM27110	FLAPERON PCU -LIB, M27110

- 2) Do a check for continuity between the pins of connector DM27221AC or DM27221AA at the E5-2 shelf (WDM 27-11-16), (WDM 27-11-14), (WDM 27-41-13).
- 3) If you still find continuity between the pins that previously showed low resistance on connector DM27221AC and DM27221AA, then do these steps:
 - a) Repair the wiring between these pins of connector DM27221AC or DM27221AA (for the ACE-R) at the E5-2 shelf and the connector that was previously disconnected above (WDM 27-11-14), (WDM 27-11-16), (WDM 27-41-13).

DM27221AC	DM27031
pin B1	pin 3
pin B2	pin 2

DM27221AC	DM27133
pin E1	pin 8
pin D1	pin 9

DM27221AA	DM27110
pin K3	pin 12
pin K4	pin 13

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that previously showed low resistance on B1 and B2 on connector DM27221AC or DM27221AA, then do these steps:
 - a) Replace the equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Do these tasks:
DM27122AC		
B1 or B2	STAB POSN MDL - R, M27031	Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801 Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 830

D633W103-ARO

Page 298.20
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the low resistance was found at pins:	Replace this equipment:	Do these tasks:
D1 or E1	WHEEL POSN XDCR - L3, M27133	Wheel Force Transducer Removal, AMM TASK 27-11-08-000-801 Wheel Force Transducer Installation, AMM TASK 27-11-08-400-801
DM27122AA		
K3 or K4	Flaperon PCU - LOB, M27110	Flaperon PCU - Removal, AMM TASK 27-11-12-000-801 Flaperon PCU - Installation, AMM TASK 27-11-12-400-801

- b) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- c) Do the Repair Confirmation procedure at the end of this task.

- (4) Do this task for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, do this task to check for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Stabilizer System
- (b) 27-Primary Flight Controls, System Test, Wheel Position
- (c) 27-Primary Flight Controls, System Test, Left Flaperon Position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

831. Multiple Transducers (Group D Fault L1) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13024.

EFFECTIVITY
ARO ALL

27-02 TASKS 830-831

D633W103-ARO

Page 298.21
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the following indications on the flight controls maintenance pages 2 and 3(on the MFD) (SSM 27-02-15):

Indication	Page
RIGHT OUTBD AILERON POSITION	FLIGHT CONTROL PG 2/3
RUD TRI M DIRECTION L1	FLIGHT CONTROL PG 3/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for RIGHT OUTBD AILERON POSITION is "00X", record "RIGHT OUTBD AILERON POSITION". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Right Aileron Position
 - (b) 27-Primary Flight Controls, System Test, Rudder Trim System.
 - (c) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

 - (a) Put a tag that reads "SUSPECT" on the left 1 actuator control electronics (ACE-L1).
 - (b) Put a tag that reads "OK" on the right actuator control electronics (ACE-R).
 - (c) Remove the ACE-R and the ACE-L1. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (d) Install the ACE tagged SUSPECT in the ACE-R rack location, and install the ACE tagged OK in the ACE-L1 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.
- (e) Do these ground tests on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Right Aileron Position

EFFECTIVITY
ARO ALL

27-02 TASK 831

D633W103-ARO

Page 298.22
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) 27-Primary Flight Controls, System Test, Rudder Trim System.
- (f) If maintenance message 27-13024 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - 2) Install the ACE tagged OK in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 5) Do the Repair Confirmation procedure at the end of this task.
- (g) If maintenance message 27-13024 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (i) Install the ACE tagged OK in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- (j) Remove the tag from the ACE-R.
- (2) Do this check of the excitation circuit for the FDR PED FORCE XDCR-L:
NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
 - (a) Do a check for an electrical short to structure ground from the following pin A10 or A11 of connector DM27121AC (for the ACE-L1) at the E1-5 shelf (WDM 27-21-18).
 - (b) If you find an electrical short at pin A10 or A11 of connector DM27121AC, then do these steps:
 - 1) Disconnect connector DM27001 from the FDR PED FORCE XDCR-L (M27010).
 - 2) Do a check for an electrical short to structure ground from pin A10 or A11 of connector DM27121AC again (WDM 27-21-18).
 - 3) If you continue to find an electrical short at pin A10 or A11 of connector DM27121AC, then do these steps:
 - a) Repair the wiring between these pins of connector DM27121AC (for the ACE-L1) and connector DM27001 (for the FDR PED FORCE XDCR-L) (WDM 27-21-18).

DM27121AC

pin A10	.....	pin 2
pin A11	.....	pin 1

DM27001

- b) Re-connect connector DM27001, to the FDR PED FORCE XDCR-L (M27010).

EFFECTIVITY
ARO ALL

27-02 TASK 831

D633W103-ARO

Page 298.23
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1

- d) Do the Repair Confirmation procedure at the end of this task.

- 4) If you do not continue to find the electrical short at pin A10 or A11 of connector DM27121AC, then do these steps:

- a) Replace the FDR PED FORCE XDCL-L, M27010. These are the tasks:

- Rudder Pedal Flight Data Recorder (FDR) Force Transducer Removal, AMM TASK 27-21-04-000-802
- Rudder Pedal Flight Data Recorder (FDR) Force Transducer Installation, AMM TASK 27-21-04-400-802

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1

- c) Do the Repair Confirmation procedure at the end of this task.

- (c) If you do not find an electrical short at pin A10 or A11 of connector DM27121AC, then continue.

- (3) Do this check for a short between the wires of the excitation circuit for the FDR PED FORCE XDCL-L:

- (a) Measure the resistance between pin A10 and pin A11 of connector DM27121AC (for the ACE-L1) at the E1-5 shelf (WDM 27-21-18).

- (b) If the resistance between pin A10 and pin A11 of connector DM27121AC is less than 10 ohms, then do these steps:

- 1) Disconnect connector DM27001 from the FDR PED FORCE XDCL-L (M27010).

- 2) Do a check for continuity between pin A10 and pin A11 of connector DM27121AC (WDM 27-21-18).

- 3) If you still find continuity between pin A10 and A11 of connector DM27121AC, then do these steps:

- a) Repair the wiring between these pins of connector DM27121AC (For the ACE-L1) and connector DM27001 (for the FDR PED FORCE XDCL-L) (WDM 27-21-18).

DM27121AC

pin A10 pin 2
pin A11 pin 1

DM27001

- b) Re-connect connector DM27001 to the FDR PED FORCE XDCL-L (M27010).

- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

EFFECTIVITY
ARO ALL

27-02 TASK 831

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.24
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- <1> Remove the tag from the ACE-L1
- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not find continuity between pin A10 and A11 of connector DM27121AC, then do these steps:
- a) Replace the FDR PED FORCE XDCR-L, M27010. These are the tasks:
- Rudder Pedal Flight Data Recorder (FDR) Force Transducer Removal, AMM TASK 27-21-04-000-802
 - Rudder Pedal Flight Data Recorder (FDR) Force Transducer Installation, AMM TASK 27-21-04-400-802
- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- NOTE:** Make sure you do the ACE Installation Test.
- <1> Remove the tag from the ACE-L1
- c) Do the Repair Confirmation procedure at the end of this task.
- (4) Do this check of the excitation circuit for the right outboard aileron PCU and rudder trim actuator:
- NOTE:** Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
- (a) Do a check for an electrical short to structure ground from the following pins of connector DM27121AA (for the ACE-L1) at the E1-5 shelf (WDM 27-21-15)(WDM 27-11-13).

DM27121AA
pin E15
pin E14
pin D4
pin E4

- (b) If you find an electrical short at the above pins, then do these steps:

- 1) Disconnect the appropriate connector from the table below.

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27121AA		
E15 or E14	DM27207A	AILERON PCU-LOB, M27207
D4 or E4	DM27126B	RUD TRIM ACTR, M27126

- 2) Do a check for an electrical short to structure ground from connector DM27121AA again (WDM 27-21-15)(WDM 27-11-13).
- 3) If you continue to find an electrical short at connector DM27121AA, then do these steps:
- a) Repair the wiring between these pins of connector DM27121AA (for the ACE-L1) and connector that was previously disconnected above (WDM 27-21-15)WDM 27-11-13.

EFFECTIVITY
ARO ALL

27-02 TASK 831

D633W103-ARO

Page 298.25
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27121AA

pin E14 pin 12
pin E15 pin 13

DM27207A

DM27121AA

pin D4 pin 6
pin E4 pin 4

DM27126B

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin E15, E14, D4 or E4 of connector DM27121AA, then do these steps:
- a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
DM27121AA		
E15 or E14	AILERON PCU-ROB, M27207	Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801 Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
D4 or E4	RUD TRIM ACTR, M27126	Rudder Trim Actuator Removal, AMM TASK 27-21-07-000-801 Rudder Trim Actuator Installation, AMM TASK 27-21-07-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- c) Do the Repair Confirmation procedure at the end of this task.
- (c) If you do not find an electrical short at connector DM27121AA, then continue.
- (5) Do this check for a short between the wires of the excitation circuit for the rudder trim actuator and the right outboard aileron PCU:
- (a) Measure the resistance between the following pins of connector DM27121AA (for the ACE-L1) at the E1-5 shelf (WDM 27-21-15)(WDM 27-11-13).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

EFFECTIVITY
ARO ALL

27-02 TASK 831

D633W103-ARO

Page 298.26
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the resistance between any of the above pins of connector DM27121AA is less than 10 ohms, then do these steps:

- 1) Disconnect the connector from the table below.

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27121AA		
E15 or E14	DM27207A	AILERON PCU-LOB, M27207
D4 or E4	DM27126B	RUD TRIM ACTR, M27126

- 2) Do a check for continuity between pins that previously showed low resistance on connector DM27121AA, then do these steps (WDM 27-21-15)(WDM 27-11-13).
- 3) If you still find continuity between the pins that previously showed low resistance on connector DM27121AA, then do these steps:
- a) Repair the wiring between these pins of connector DM27121AA (for the ACE-L1) and the connector that was previously disconnected above (WDM 27-21-15)(WDM 27-11-13).

DM27121AA	DM27207A
pin E14	pin 12
pin E15	pin 13

DM27121AA	DM27126B
pin D4	pin 6
pin E4	pin 4

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- NOTE: Make sure you do the ACE Installation Test.
- <1> Remove the tag from the ACE-L1.
- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that was previously showed low resistance on connector DM27121AA, then do these steps:

- a) Replace the equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
DM27121AA		
E15 or E14	AILERON PCU-ROB, M27207	Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801 Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 831

D633W103-ARO

Page 298.27
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
D4 or E4	RUD TRIM ACTR, M27126	Rudder Trim Actuator Removal, AMM TASK 27-21-07-000-801 Rudder Trim Actuator Installation, AMM TASK 27-21-07-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- c) Do the Repair Confirmation procedure at the end of this task.
- (6) Do this task for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with PCU wiring, do this task to check for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Right Aileron Position
- (b) 27-Primary Flight Controls, System Test, Rudder Trim System.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

832. Multiple Transducers (Group D Fault C) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13026.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps.
- (a) Monitor the following indications on the flight controls maintenance pages 1 and 2 (on the MFD) (SSM 27-02-15):

Indication	Page
CAPT WHEEL POSITION 2	FLIGHT CONTROL PG 1/3
F/O WHEEL FORCE	FLIGHT CONTROL PG 1/3
RIGHT ELEVATOR FEEL ACTUATOR	FLIGHT CONTROL PG 1/3

EFFECTIVITY
ARO ALL

27-02 TASKS 831-832

D633W103-ARO

Page 298.28
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Indication	Page
LEFT INBOARD AILERON POSITION	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for LEFT INBOARD AILERON POSITION is "00X", record "LEFT INBOARD AILERON POSITION". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Left Aileron Position
 - (b) 27-Primary Flight Controls, System Test, Elevator Feel System
 - (c) 27-Primary Flight Controls, System Test, Wheel Force Transducer
 - (d) 27-Primary Flight Controls, System Test, Wheel Position.
 - (e) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
 - (f) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):
- NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.
- (a) Put a tag that reads "SUSPECT" on the center actuator control electronics (ACE-C).
 - (b) Put a tag that reads "OK" on the left 2 actuator control electronics (ACE-L2).
 - (c) Remove the ACE-C and the ACE-L2. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (d) Install the ACE tagged SUSPECT in the ACE-L2 rack location, and install the ACE tagged OK in the ACE-C rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.
- (e) Do these ground tests on the MAT:
- 1) 27-Primary Flight Controls, System Test, Left Aileron Position
 - 2) 27-Primary Flight Controls, System Test, Elevator Feel System
 - 3) 27-Primary Flight Controls, System Test, Wheel Force Transducer

EFFECTIVITY
ARO ALL

27-02 TASK 832

D633W103-ARO

Page 298.29
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) 27-Primary Flight Controls, System Test, Wheel Position.
- (f) If maintenance message 27-13026 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - 2) Install the ACE tagged OK in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 5) Do the Repair Confirmation procedure at the end of this task.
- (g) If maintenance message 27-13026 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (i) Install the ACE tagged OK in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- (j) Remove the tag from the ACE-L2.
- (2) Do this check of the excitation circuit for the right elevator feel actuator, left 2 wheel position, wheel force transducer and left inboard aileron PCU transducers:
NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
- (a) Do a check for an electrical short to structure ground from the following pins of connector DM27321AA and DM27321AC at the E2-5 shelf (WDM 27-31-15)(WDM 27-11-12).

DM27321AC	DM27321AA
pin G14	pin E15
pin H14	pin E14
pin A11	pin E4
pin A10	pin D4

- (b) If you find an electrical short at the above pins, then do these steps:
 - 1) Disconnect the appropriate connector from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27321AC		
G14 or H14	DM27132	WHEEL POSN XDCR-L2, M27132
A11 or A10	DM27129B	WHEEL FORCE XDCR ASSY-2, M27129

EFFECTIVITY
ARO ALL

27-02 TASK 832

D633W103-ARO

Page 298.30
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27321AA		
E15 or E14	DM27108A	AILERON PCU-LIB, M27108
E4 or D4	DM27021	ELEV FEEL ACTR-R, M27021

- 2) Do a check for an electrical short to structure ground from connector DM27321AA and DM27321AC again (WDM 27-31-15)(WDM 27-11-12).
- 3) If you continue to find an electrical short at connector DM27321AA or DM27321AC, then do these steps:

- a) Repair the wiring between these pins of connector DM27321AA or DM27321AC at the E2-5 shelf and the connector that was previously disconnected above (WDM 27-31-15)(WDM 27-11-12):

DM27321AC	DM27132
pin G14	pin 9
pin H14	pin 8

DM27321AC	DM27129B
pin A10	pin 8
pin A11	pin 9

DM27321AA	DM27021
pin D4	pin 6
pin E4	pin 4

DM27321AA	DM27108A
pin E14	pin 12
pin E15	pin 13

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find electrical short at pin G14, H14, A11 or A10 of connector DM27321AC or at pin E15, E14, D4 or E4 of connector DM27321AA, then do these steps:

- a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
DM27321AC		

EFFECTIVITY
ARO ALL

27-02 TASK 832

D633W103-ARO

Page 298.31
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

(Continued)

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
G14 or H14	WHEEL POSN XDCR-L2, M27132	Wheel Position Transducer - Removal, AMM TASK 27-11-02-000-801 Wheel Position Transducer - Installation, AMM TASK 27-11-02-400-801
A11 or A10	WHEEL FORCE XDCR ASSY-2, M27129	Wheel Force Transducer - Removal, AMM TASK 27-11-08-000-801 Wheel Force Transducer - Installation, AMM TASK 27-11-08-400-801
DM27321AA		
E15 or E14	AILERON PCU-LIB, M27108	Aileron Power Control Unit (PCU) - Removal, AMM TASK 27-11-11-000-801 Aileron Power Control Unit (PCU) - Installation, AMM TASK 27-11-11-400-801
E4 or D4	ELEV FEEL ACTR-R, M27021	Elevator Feel Actuators - Removal, AMM TASK 27-31-07-000-801 Elevator Feel Actuators - Installation, AMM TASK 27-31-07-400-801

- b) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C

- c) Do the Repair Confirmation procedure at the end of this task.

- (c) If you do not find an electrical short at connector DM27321AA or Dm27321AC, then continue.

- (3) Do this check for a short between the wires of the excitation circuit for the left 2 wheel position transducer, wheel force transducer, left inboard aileron PCU transducer, and right elevator feel actuator:

- (a) Measure the resistance between the following pins of connector DM27321AC and DM27321AA at the E2-5 shelf (WDM 27-11-12)(WDM 27-31-15).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

DM27321AC	DM27321AA
pin G14 and pin H14	pin A11 and pi A10
pin E15 and pin E14	pin E4 and pin D4

- (b) If the resistance between any of the above pins of connector DM27321AC or DM27321AA is less than 10 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

EFFECTIVITY
ARO ALL

27-02 TASK 832

D633W103-ARO

Page 298.32
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27321AC		
G14 or H14	DM27132	WHEEL POSN XDCR-L2, M27132
A11 or A10	DM27129B	WHEEL FORCE XDCR ASSY-2, M27129
DM27321AA		
E15 or E14	DM27108A	AILERON PCU-LIB, M27108
E4 or D4	DM27021	ELEV FEEL ACTR-R, M27021

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27321AC or DM27321AA at the E2-5 shelf (WDM 27-11-12)(WDM 27-31-15).
- 3) If you still find continuity between the pins that was previously showed low resistance on connector DM27321AC or DM27321AA, then do these steps:
 - a) Repair the wiring between these pins of connector DM27321AC or DM27321AA at the E2-5 shelf and the connector that was previously disconnected above (WDM 27-11-12)(WDM 27-31-15):

DM27321AC	DM27132
pin G14	pin 9
pin H14	pin 8

DM27321AC	DM27129B
pin A10	pin 8
pin A11	pin 9

DM27321AA	DM27108A
pin E15	pin 13
pin E14	pin 12

DM27321AA	DM27021
pin D4	pin 6
pin E4	pin 4

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
<1> Remove the tag from the ACE-C
 - d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that was previously showed low resistance on connector DM27321AC or DM27321AA, then do these steps:
 - a) Replace the equipment from the table below:

EFFECTIVITY
ARO ALL

27-02 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.33
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
DM27321AC		
G14 or H14	WHEEL POSN XDCR-L2, M27132	Wheel Position Transducer - Removal, AMM TASK 27-11-02-000-801 Wheel Position Transducer - Installation, AMM TASK 27-11-02-400-801
A11 or A10	WHEEL FORCE XDCR ASSY-2, M27129	Wheel Force Transducer - Removal, AMM TASK 27-11-08-000-801 Wheel Force Transducer - Installation, AMM TASK 27-11-08-400-801
DM27321AA		
E15 or E14	AILERON PCU-LIB, M27108	Aileron Power Control Unit (PCU) - Removal, AMM TASK 27-11-11-000-801 Aileron Power Control Unit (PCU) - Installation, AMM TASK 27-11-11-400-801
E4 or D4	ELEV FEEL ACTR-R, M27021	Elevator Feel Actuators - Removal, AMM TASK 27-31-07-000-801 Elevator Feel Actuators - Installation, AMM TASK 27-31-07-400-801

- b) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C.

- c) Do the Repair Confirmation procedure at the end of this task.

- (4) Do a wiring check for obvious electrical faults in the applicable PCU wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
(b) If no faults are found with PCU wiring, do this task to check for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
(c) If a fault is found, repair or replace the applicable wiring.
(d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Left Aileron Position
(b) 27-Primary Flight Controls, System Test, Elevator Feel System
(c) 27-Primary Flight Controls, System Test, Wheel Force Transducer
(d) 27-Primary Flight Controls, System Test, Wheel Position.

EFFECTIVITY
ARO ALL

27-02 TASK 832

D633W103-ARO

Page 298.34
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

833. Multiple Transducers (Group D Fault R) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13027.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps.
- (a) Monitor the following indications on the flight controls maintenance pages 1, 2 and 3(on the MFD) (SSM 27-02-15):

Indication	Page
F/O WHEEL POSITION 3	FLIGHT CONTROL PG 1/3
RUD TRIM POSITION 2	FLIGHT CONTROL PG 1/3
RIGHT INBOARD AILERON POSITION	FLIGHT CONTROL PG 2/3
RUD TRIM ARMED R	FLIGHT CONTROL PG 3/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for LEFT INBOARD AILERON POSITION is "00X", record "LEFT INBOARD AILERON POSITION". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Right Aileron Position
- (b) 27-Primary Flight Controls, System Test, Wheel Position
- (c) 27-Primary Flight Controls, System Test, Rudder Trim System.
- (d) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
- (e) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):
- NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.
- (a) Put a tag that reads "SUSPECT" on the right actuator control electronics (ACE-R).

EFFECTIVITY
ARO ALL

27-02 TASKS 832-833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.35
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Put a tag that reads "OK" on the left 2 actuator control electronics (ACE-L2).
- (c) Remove the ACE-R and the ACE-L2. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Install the ACE tagged SUSPECT in the ACE-L2 rack location, and install the ACE tagged OK in the ACE-R rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Right Aileron Position
 - 2) 27-Primary Flight Controls, System Test, Wheel Position
 - 3) 27-Primary Flight Controls, System Test, Rudder Trim System.
 - (f) If maintenance message 27-13027 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - 2) Install the ACE tagged OK in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

 - 5) Do the Repair Confirmation procedure at the end of this task.
 - (g) If maintenance message 27-13027 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with (h) below.
 - (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (i) Install the ACE tagged OK in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- NOTE: Make sure you do the ACE Installation Test.
- (j) Remove the tag from the ACE-R.

- (2) Do this check of the excitation circuit for the FDR PED FORCE XDCR-R:

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

- (a) Do a check for an electrical short to structure ground from pin A10 or A11 of connector DM27221AC (for the ACE-R) (WDM 27-21-18).
- (b) If you find an electrical short at pin A10 or A11 of connector DM27221AC, then do these steps:
 - 1) Disconnect connector DM27002 from the FDR PED FORCE XDCR-R (M27011).
 - 2) Do a check for an electrical short to structure ground from pin A10 or A11 of connector DM27221AC again (WDM 27-21-18).

EFFECTIVITY
ARO ALL

27-02 TASK 833

D633W103-ARO

Page 298.36
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If you continue to find an electrical short at pin A10 or A11 of connector DM27221AC, then do these steps:
- a) Repair the wiring between these pins of connector DM27221AC (For the ACE-R) and connector DM27002 (for the FDR PED FORCE XDCR-R) (WDM 27-21-18).

DM27221AC	DM27002
pin A10	pin 2
pin A11	pin 1

- b) Re-connect connector DM27002, to the FDR PED FORCE XDCR-R (M27011).
- c) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin A10 or A11 of connector DM27221AC, then do these steps:
- a) Replace the FDR PED FORCE XDCR-R, M27011. These are the tasks:
- Rudder Pedal Flight Data Recorder (FDR) Force Transducer Removal, AMM TASK 27-21-04-000-802
 - Rudder Pedal Flight Data Recorder (FDR) Force Transducer Installation, AMM TASK 27-21-04-400-802
- b) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- c) Do the Repair Confirmation procedure at the end of this task.

- (c) If you do not find an electrical short at pin A10 or A11 of connector DM27221AC, then continue.

- (3) Do this check of the excitation circuit for the right 3 wheel position, right inboard aileron PCU, rudder trim actuator, and rudder trim position transducers:

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

- (a) Do a check for an electrical short to structure ground from pins of connector DM27221AC and DM27221AA (for the ACE-R) at the E5-2 shelf (WDM 27-11-14)(WDM 27-21-15)(WDM 27-21-18).

DM27221AA	DM27221AC
pin E15	pin G14
pin E14	pin H14
pin D4	

EFFECTIVITY
ARO ALL

27-02 TASK 833

D633W103-ARO

Page 298.37
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

(Continued)

DM27221AA	DM27221AC
pin E4	

(b) If you find an electrical short at the above pins, then do these steps:

1) Disconnect the appropriate connector from the table below.

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27221AA		
E15 or E14	DM27208A	AILERON PCU-RIB, M27208
D4 or E4	DM27043	RUDDER TRIM POSN XDCR-2, M27043
DM27221AC		
G14 or H14	DM27233	WHEEL POSN XDCR-R3, M27233

- 2) Do a check for an electrical short to structure ground from connector DM27221AC and DM27221AA again (WDM 27-11-14)(WDM 27-21-18)(WDM 27-21-15).
- 3) If you continue to find an electrical short at connector DM27221AC or DM27221AA, then do these steps:
- a) Repair the wiring between these pins of connector DM27221AC or DM27221AA (for the ACE-R) and the connector that was previously disconnected above (WDM 27-11-14)(WDM 27-21-15).

DM27221AC

pin H14 pin 8
pin G14 pin 9

DM27233

DM27221AA

pin E14 pin 12
pin E15 pin 13

DM27208A

DM27221AA

pin E4 pin 8
pin D4 pin 9

DM27043

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- NOTE: Make sure you do the ACE Installation Test.
- <1> Remove the tag from the ACE-R.
- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin H14 or G14 of connector DM27221AC or at pin E14, E15, E4 or D4 of connector DM27221AA, then do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK 833

D633W103-ARO



**777-200/300
FAULT ISOLATION MANUAL**

a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
DM27221AC		
G14 or H14	WHEEL POSN XDCR-R3, M27233	Wheel Force Transducer - Removal, AMM TASK 27-11-02-000-801 Wheel Force Transducer - Installation, AMM TASK 27-1-02-400-801
DM27221AA		
E15 or E14	AILERON PCU-RIB, M27208	Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801 Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
D4 or E4	RUDDER TRIM POSN XDCR-2, M27043	Rudder Trim Position Transducer - Removal, AMM TASK 27-21-03-000-801 Rudder Trim Position Transducer - Installation, AMM TASK 27-21-03-400-801

b) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

c) Do the Repair Confirmation procedure at the end of this task.

(c) If you do not find an electrical short at connector DM27221AC or DM27221AA, then continue.

(4) Do this check for a short between the wires of the excitation circuit for the right 3 wheel position, right inboard aileron PCU, rudder trim actuator, and rudder trim position transducers:

(a) Measure the resistance between the following pins of connector DM27221AC and DM27221AA (for the ACE-R) (WDM 27-11-14)(WDM 27-21-15).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

DM27221AA	DM27221AC
pin E15 and pin E14	pin G14 and pin H14
pin D4 and pin E4	

(b) If the resistance between any of the above pins of connector DM27221AC or DM27221AA is less than 10 ohms, then do these steps:

1) Disconnect the appropriate connector from the table above.

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27221AA		
E15 or E14	DM27208A	AILERON PCU-RIB, M27208

EFFECTIVITY
ARO ALL

27-02 TASK 833

D633W103-ARO

Page 298.39
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
D4 or E4	DM27043	RUDDER TRIM POSN XDCR-2, M27043
DM27221AC		
G14 or H14	DM27233	WHEEL POSN XDCR-R3, M27233

- 2) Do a check for continuity between the pins that was previously showed low resistance on connector DM27221AC or DM27221AA at the E5-2 shelf (WDM 27-11-14)(WDM 27-21-15).
- 3) If you still find continuity between the pins that was previously showed low resistance on connector DM27221AC or DM27221AA, then do these steps:
 - a) Repair the wiring between these pins of connector DM27221AC or DM27221AA (for the ACE-R) at the E5-2 shelf and the connector that was previously disconnected above (WDM 27-11-14)(WDM 27-21-15).

DM27221AC	DM27233
pin H14	pin 8
pin G14	pin 9

DM27221AA	DM27208A
pin E14	pin 12
pin E15	pin 13

DM27221AA	DM27043
pin E4	pin 8
pin D4	pin 9

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that was previously showed low resistance on connector DM27221AC or DM27221AA, then do these steps:
 - a) Replace the equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
DM27221AC		

EFFECTIVITY
ARO ALL

27-02 TASK 833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.40
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
G14 or H14	WHEEL POSN XDCR-R3, M27233	Wheel Force Transducer - Removal, AMM TASK 27-11-02-000-801 Wheel Force Transducer - Installation, AMM TASK 27-1-02-400-801
DM27221AA		
E15 or E14	AILERON PCU-RIB, M27208	Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801 Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
D4 or E4	RUDDER TRIM POSN XDCR-2, M27043	Rudder Trim Position Transducer - Removal, AMM TASK 27-21-03-000-801 Rudder Trim Position Transducer - Installation, AMM TASK 27-21-03-400-801

- b) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- c) Do the Repair Confirmation procedure at the end of this task.

- (5) Do this task for obvious electrical faults in the applicable PCU wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with PCU wiring, do this task to check for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Right Aileron Position
- (b) 27-Primary Flight Controls, System Test, Wheel Position
- (c) 27-Primary Flight Controls, System Test, Rudder Trim System.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-02 TASK 833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.41
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

834. Multiple Transducers (Group E Fault L1) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13028.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
- (a) Monitor the following indications on the flight controls maintenance pages 2 and 3(on the MFD) (SSM 27-02-15):

Indication	Page
SPEEDBRAKE HANDLE POSITION 1	FLIGHT CONTROL PG 1/3
SPOILER POSITION 2	FLIGHT CONTROL PG 2/3
SPOILER POSITION 13	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for SPOILER POSITION 2 is "00X", record "SPOILER POSITION 2". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Speedbrake System
- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (b) 27-Primary Flight Controls, System Test, Spoiler 2, 13 System.
- 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (c) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
- (d) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):
- NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.
- (a) Put a tag that reads "SUSPECT" on the left 1 actuator control electronics (ACE-L1).
- (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
- (c) Remove the ACE-C and the ACE-L1. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

EFFECTIVITY
ARO ALL

27-02 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.42
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-L1 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do these ground tests on the MAT:

- 1) 27-Primary Flight Controls, System Test, Speedbrake System
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- 2) 27-Primary Flight Controls, System Test, Spoiler 2, 13 System.
- 3) Push the speedbrake lever forward to make sure that it is in the DOWN position.

- (f) If maintenance message 27-13028 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is not faulty. Do these steps:

- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

- 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 3) Remove the ACE tagged SUSPECT from the airplane.

- 4) Install a new ACE in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 5) Do the Repair Confirmation procedure at the end of this task.

- (g) If maintenance message 27-13028 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with (h) below.

- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

- (i) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- (j) Remove the tag from the ACE-C.

- (2) Do this check of the excitation circuit for the FDR COL FORCE XDCR-L:

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

- (a) Do a check for an electrical short to structure ground from pins of connector DM27121AA and DM27121AC (for the ACE-L1) at the E1-5 shelf (WDM 27-31-17).

DM27121AA	DM27121AC
pin K6	pin K6
pin K5	pin K5

- (b) If you find an electrical short at the above pins, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

EFFECTIVITY
ARO ALL

27-02 TASK 834

D633W103-ARO

Page 298.43
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27121AC		
K6 or K5	DM27009	FDR COL FORCE XDCR-R, M27013
DM27121AA		
K6 or K5	DM27008	FDR COL FORCE XDCR-L, M27012

- 2) Do a check for an electrical short to structure ground from connector DM27121AA and DM27121AC again (WDM 27-31-17).
- 3) If you continue to find an electrical short at connector DM27121AA or DM27121AC, then do these steps:

- a) Repair the wiring between these pins of connector DM27121AA or DM27121AC (for the ACE-L1) and the connector that was previously disconnected above (WDM 27-31-17).

DM27121AA	DM27008
pin K5	pin 8
pin K6	pin 9

DM27121AC	DM27009
pin K6	pin 9
pin K5	pin 8

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin K5 or K6 of connector DM27121AA or pin K6 or K5 of connector DM27121AC, then do these steps:
- a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
DM27121AA		
K6 or K5	FDR COL FORCE XDCR-L, M27012	Column Force Transducer- Removal, AMM TASK 27-31-08-000-801 Column Force Transducer-Installation, AMM TASK 27-31-08-400-801
DM27121AC		

EFFECTIVITY
ARO ALL

27-02 TASK 834

D633W103-ARO

Page 298.44
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
K6 or K5	FDR COL FORCE XDCR-R, M27013	Column Force Transducer- Removal, AMM TASK 27-31-08-000-801 Column Force Transducer-Installation, AMM TASK 27-31-08-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1

- c) Do the Repair Confirmation procedure at the end of this task.

- (c) If you do not find an electrical short at connector DM27121AA or DM27121AC, then continue.

- (3) Do this check for a short between the wires of the excitation circuit for the FDR column force transducers:

- (a) Measure the resistance between the following pins of connector DM27121AA and DM27121AC (for the ACE-L1) at the E1-5 shelf (WDM 27-31-17).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

DM27121AA	DM27121AC
pin K6 and pin K5	pin K6 and pin K5

- (b) If the resistance between any of the above pins of connector DM27121AA or DM27121AC is less than 10 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below:

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27121AC		
K6 or K5	DM27009	FDR COL FORCE XDCR-R, M27013
DM27121AA		
K6 or K5	DM27008	FDR COL FORCE XDCR-L, M27012

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27121AA or DM27121AC at the E1-5 shelf (WDM 27-31-17).
- 3) If you still find continuity between pins that previously showed low resistance on connector DM27121AA or DM27121AC, then do these steps:
- a) Repair the wiring between these pins of connector DM27121AA or DM27121AC (for the ACE-L1) and the connector that was previously disconnected above (WDM 27-31-17).

EFFECTIVITY
ARO ALL

27-02 TASK 834

D633W103-ARO

Page 298.45
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27121AA

pin K5 pin 8
pin K6 pin 9

DM27008

DM27121AC

pin K6 pin 9
pin K5 pin 8

DM272009

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27121AA or DM27121AC, then do these steps:
- a) Replace the appropriate equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
DM27121AA		
K6 or K5	FDR COL FORCE XDCR-L, M27012	Column Force Transducer- Removal, AMM TASK 27-31-08-000-801 Column Force Transducer-Installation, AMM TASK 27-31-08-400-801
DM27121AC		
K6 or K5	FDR COL FORCE XDCR-R, M27013	Column Force Transducer- Removal, AMM TASK 27-31-08-000-801 Column Force Transducer-Installation, AMM TASK 27-31-08-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- c) Do the Repair Confirmation procedure at the end of this task.
- (4) Do this check of the excitation circuit for the speedbrake lever and spoiler PCU position transducers:
- NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
- (a) Do a check for an electrical short to structure ground from the following pins of connector DM27121AC and DM27121 AA (for the ACE-L1-5 shelf (WDM 27-61-11)).

EFFECTIVITY
ARO ALL

27-02 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.46
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27121AC	DM27121AA
pin D4	pin A8
pin E4	pin A7
pin A8	
pin A7	

(b) If you find an electrical short at the above pins, then do these steps:

1) Disconnect appropriate connector from the table below.

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27121AC		
D4 or E4	DM27029A	Speed Brake Lever Transducer, M27029
DM27121AA		
A8 or A7	DM27217	SPLR PCU(13), M27217
DM27121AC		
A8 or A7	DM27117	SPLR PCU(2), M27117

- 2) Do a check for an electrical short to structure ground from connector DM27121AC and DM27121AA again (WDM 27-61-11).
- 3) If you continue to find an electrical short at connector DM27121AC or DM27121AA, then do these steps:
- a) Repair the wiring between these pins of connector DM27121AC or DM27121AA (for the ACE-L1) and the connector that was previously disconnected above (WDM 27-61-11).

DM27121AC	DM27029A
pin E4	pin 8
pin D4	pin 9

DM27121AC	DM27117
pin A8	pin 8
pin A7	pin 7

DM27121AA	DM27217
pin A7	pin 7
pin A8	pin 8

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

EFFECTIVITY
ARO ALL

27-02 TASK 834

D633W103-ARO

Page 298.47
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not continue to find the electrical short at pin E4, D4, A8 or A7 of connector DM27121AC or at pin A8 or A7 of connector DM27121AA, then do these steps:
- a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
DM27121AC		
D4 or E4	Speed Brake Lever Transducer, M27029	Speed Brake Lever Transducer - Removal, AMM TASK 27-61-02-000-801 Speed Brake Lever Transducer - Installation, AMM TASK 27-61-02-400-801
DM27121AA		
A8 or A7	SPLR PCU (13), M27217	Outboard Spoiler Power Control Unit (PCU)-Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU)-Installation, AMM TASK 27-61-08-400-801
DM27121AC		
A8 or A7	SPLR PCU (2), M27117	Outboard Spoiler Power Control Unit (PCU)-Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU)-Installation, AMM TASK 27-61-08-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- NOTE: Make sure you do the ACE Installation Test.
- <1> Remove the tag from the ACE-L1.
- c) Do the Repair Confirmation procedure at the end of this task.
- (c) If you do not find an electrical short at connector DM27121AC or DM27121AA, then continue.
- (5) Do this check for a short between the wires of the excitation circuit for the speedbrake lever and spoiler PCU position transducers:
- (a) Measure the resistance between the following pins of connector DM27121AC or DM27121AA (for the ACE-L1) (WDM 27-61-11).
- NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
- (b) If the resistance between any of the above pins of connector DM27121AC or DM27121AA is less than 10 ohms, then do these steps:
- 1) Disconnect the appropriate connector from the table below.

EFFECTIVITY
ARO ALL

27-02 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.48
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27121AC		
D4 or E4	DM27029A	Speed Brake Lever Transducer, M27029
DM27121AA		
A8 or A7	DM27217	SPLR PCU(13), M27217
DM27121AC		
A8 or A7	DM27117	SPLR PCU(2), M27117

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27121AC or DM27121AA at the E1-5 shelf (WDM 27-61-11).
- 3) If you still find continuity between the pins that previously showed low resistance on connector DM27121AC or DM27121AA, then do these steps:
 - a) Repair the wiring between these pins of connector DM27121AC or DM27121AA (for the ACE-L1) and the connector that was previously disconnected above (WDM 27-61-11).

DM27121AC	DM27029A
pin E4	pin 8
pin D4	pin 9

DM27121AC	DM27117
pin A8	pin 8
pin A7	pin 7

DM27121AA	DM27217
pin A7	pin 7
pin A8	pin 8

- b) Re-connect the connector that was previously disconnected above.
 - c) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
<1> Remove the tag from the ACE-L1.
 - d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27121AC or DM27121AA, then do these steps:
 - a) Replace the equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
DM27121AC		

EFFECTIVITY
ARO ALL

27-02 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.49
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
D4 or E4	Speed Brake Lever Transducer, M27029	Speed Brake Lever Transducer - Removal, AMM TASK 27-61-02-000-801 Speed Brake Lever Transducer - Installation, AMM TASK 27-61-02-400-801
DM27121AA		
A8 or A7	SPLR PCU (13), M27217	Outboard Spoiler Power Control Unit (PCU)-Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU)-Installation, AMM TASK 27-61-08-400-801
DM27121AC		
A8 or A7	SPLR PCU (2), M27117	Outboard Spoiler Power Control Unit (PCU)-Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU)-Installation, AMM TASK 27-61-08-400-801

- b) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-L1.

- c) Do the Repair Confirmation procedure at the end of this task.

- (6) Do this task for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with PCU wiring, then do this task to check for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802
- (c) If a fault is found, repair or replace the applicable PCU.
- (d) Do the Repair Confirmation procedure at the end of this task.
- (7) Do this check for a short to ground of the excitation circuit for the number 2 spoiler PCU:
- (a) Do a check for an electrical short to structure ground from pin A8 or A7 of connector DM27121AC (for the ACE-number 2) (WDM 27-61-11).
- (b) If you find an electrical short at pin A8 or A7 of connector DM27121AC, then do these steps:
- 1) Disconnect connector DM27117 from the number 2 spoiler PCU (M27117).

EFFECTIVITY
ARO ALL

27-02 TASK 834

D633W103-ARO

Page 298.50
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Do a check for an electrical short to structure ground from pin A8 or A7 of connector DM27121AC again (WDM 27-61-11).
- 3) If you continue to find an electrical short at pin A8 or A7 of connector DM27121AC, then do these steps:
 - a) Repair the wiring between these pins of connector DM27121AC (For the ACE-number 2) and connector DM27117 (for the number 2 spoiler PCU) (WDM 27-61-11).

DM27121AC	DM27117
pin A8	pin 8
pin A7	pin 7

- b) Re-connect connector DM27117, to the number 2 spoiler PCU (M27117).
 - c) Do the Repair Confirmation procedure at the end of this task.
 - 4) If you do not continue to find the electrical short at pin A8 or A7 of connector DM27121AC, then do these steps:
 - a) Replace the number 2 spoiler PCU, M27117. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - b) Do the Repair Confirmation procedure at the end of this task.
 - (c) If you do not find an electrical short at pin A8 or A7 of connector DM27121AC, then continue.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Speedbrake System
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) 27-Primary Flight Controls, System Test, Spoiler 2, 13 System.
 - (c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

835. Multiple Transducers (Group E Fault C) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13030.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the following indications on the flight controls maintenance pages 1 and 2 (on the MFD) (SSM 27-02-15):

EFFECTIVITY
ARO ALL

27-02 TASKS 834-835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.51
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Indication	Page
SPEEDBRAKE HANDLE POSITION 3	FLIGHT CONTROL PG 1/3
SPOILER POSITION 1	FLIGHT CONTROL PG 2/3
SPOILER POSITION 7	FLIGHT CONTROL PG 2/3
SPOILER POSITION 8	FLIGHT CONTROL PG 2/3
SPOILER POSITION 14	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for SPOILER POSITION 1 is "00X", record "SPOILER POSITION 1". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Speedbrake System
- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (b) 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
- (c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (d) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
- (e) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- (a) Put a tag that reads "SUSPECT" on the center actuator control electronics (ACE-C).
- (b) Put a tag that reads "OK" on the left 2 actuator control electronics (ACE-L2).
- (c) Remove the ACE-C and the ACE-L2. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Install the ACE tagged SUSPECT in the ACE-L2 rack location, and install the ACE tagged OK in the ACE-C rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

EFFECTIVITY
ARO ALL

27-02 TASK 835

D633W103-ARO

Page 298.52
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) Do these ground tests on the MAT:
- 1) 27-Primary Flight Controls, System Test, Speedbrake System
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
 - 3) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (f) If maintenance message 27-13030 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:
- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - 2) Install the ACE tagged OK in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 5) Do the Repair Confirmation procedure at the end of this task.
- (g) If maintenance message 27-13030 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (i) Install the ACE tagged OK in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- (j) Remove the tag from the ACE-L2.
- (2) Do this check of the excitation circuits for the speedbrake lever transducer and spoiler PCU position transducers:
- NOTE:** Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
- (a) Do a check for an electrical short to structure ground from the following pins of connectors DM27321AC and DM27321AA (for the ACE-C) at the E2-5 shelf (WDM 27-61-15).

DM27321AC	DM27321AA
pin D4	pin K6
pin E4	pin K5
pin K6	pin A8
pin K5	pin A7
pin A8	
pin A7	

EFFECTIVITY
ARO ALL

27-02 TASK 835

D633W103-ARO

Page 298.53
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

(b) If the resistance between the above pins is not 25-200 ohms, then do these steps:

1) Disconnect the appropriate connector from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27321AC		
D4 or E4	DM27029C	Speed Brake Lever Transducer, M27029
K6 or K5	DM27215	SPLR PCU (8), M27215
A8 or A7	DM27216	SPLR PCU (14), M27216
DM27321AA		
K6 or K5	DM27115	SPLR PCU (7), M27115
A8 or A7	DM27116	SPLR PCU (1), M27116

- 2) Do a check between for an electrical short to structure ground of connector DM27321AC and DM27321AA again.
- 3) If you continue to find an electrical short at connector DM27321AA or DM27321AC, then do these steps:
- a) Repair the wiring between these pins of connector DM27321AA or DM27321AC (for the ACE-C) and the connector that was previously disconnected above (WDM 27-61-15).

DM27321AC	DM27029C
pin D4	pin 9
pin E4	pin 8

DM27321AC	DM27215
pin K6	pin 8
pin K5	pin 7

DM27321AC	DM27216
pin A8	pin 8
pin A7	pin 7

DM27321AA	DM27115
pin K6	pin 8
pin K5	pin 7

DM27321AA	DM27116
pin A8	pin 8
pin A7	pin 7

b) Re-connect the connector that was previously disconnected above.

EFFECTIVITY
ARO ALL

27-02 TASK 835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.54
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C.

- d) Do the Repair Confirmation procedure at the end of this task.

- 4) If you do not continue to find the the electrical short at pin D4, E4, K6, K5, A8, or A7 of connector DM27321AC or pin K6, K5, A8, or A7 of connector DM27321AA, then do these steps:

- a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
DM27321AC		
D4 or E4	Speed Brake Lever Transducer, M27029	Speed Brake Lever Transducer Removal, AMM TASK 27-61-02-000-801 Speed Brake Lever Transducer Installation, AMM TASK 27-61-02-400-801
K6 or K5	SPLR PCU (8), M27215	Inboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-07-000-801 Inboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-07-400-801
A8 or A7	SPLR PCU (14), M27216	Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
DM27321AA		
K6 or K5	SPLR PCU (7), M27115	Inboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-07-000-801 Inboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-07-400-801
A8 or A7	SPLR PCU (1), M27116	Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

- b) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-C.

- c) Do the Repair Confirmation procedure at the end of this task.

EFFECTIVITY
ARO ALL

27-02 TASK 835

D633W103-ARO

Page 298.55
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (c) If the resistance between the above pins of connector DM27321AC or DM27321AA is 25-200 ohms, then continue.
- (3) Do this check for a short between the wires of the excitation circuit for the speedbrake lever and spoiler PCU position transducers::
- (a) Measure the resistance between the following pins of connector DM27321AA and DM27321AC (for the ACE-C) at the E2-5 shelf (WDM 27-61-15)

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

DM27321AC	DM27321AA
pin D4 and pin E4	pin K6 and pin K5
pin K6 and pin K5	pin A8 and pin A7
pin A8 and pin A7	

- (b) If the resistance between any of the above pins of connector DM27321AC or DM27321AA is not 25-200 ohms, then do these steps:

1) Disconnect the appropriate connector from the table below.

If the low voltage was found at pins:	Disconnect this connector:	To this equipment:
DM27321AC		
D4 or E4	DM27029C	Speed Brake Lever Transducer, M27029
K6 or K5	DM27215	SPLR PCU (8), M27215
A8 or A7	DM27216	SPLR PCU (14), M27216
DM27321AA		
K6 or K5	DM27115	SPLR PCU (7), M27115
A8 or A7	DM27116	SPLR PCU (1), M27116

- (c) Do a check between these pins that previously showed low resistance on connector DM27321AA or DM27321AC at the E2-5 shelf (WDM 27-61-15):
- (d) If you still find continuity between the pins that previously showed low resistance on connector DM27321AA or DM27321AC, then do these steps:
- (e) Repair the wiring between these pins of connector DM27321AA or DM27321AC and the connector that was previously disconnected above (WDM 27-61-15).

DM27321AC	DM27029C
pin D4	pin 9
pin E4	pin 8

DM27321AC	DM27215
pin K6	pin 8
pin K5	pin 7

EFFECTIVITY
ARO ALL

27-02 TASK 835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.56
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27321AC	DM27216
pin A8	pin 8
pin A7	pin 7

DM27321AA	DM27115
pin K6	pin 8
pin K5	pin 7

DM27321AA	DM27116
pin A8	pin 8
pin A7	pin 7

- (f) Re-connect the connector that was previously disconnected above.
- (g) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- NOTE:** Make sure you do the ACE Installation Test.
- 1) Remove the tag from the ACE-C.
- (h) Do the Repair Confirmation procedure at the end of this task.
- (4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27321AA or DM27321AC, then do these steps:
- (a) Replace the equipment from the table below:

If the low voltage was found at pins:	Replace this equipment:	Using these tasks:
DM27321AC		
D4 or E4	Speed Brake Lever Transducer, M27029	Speed Brake Lever Transducer Removal, AMM TASK 27-61-02-000-801 Speed Brake Lever Transducer Installation, AMM TASK 27-61-02-400-801
K6 or K5	SPLR PCU (8), M27215	Inboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-07-000-801 Inboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-07-400-801
A8 or A7	SPLR PCU (14), M27216	Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
DM27321AA		
K6 or K5	SPLR PCU (7), M27115	Inboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-07-000-801 Inboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-07-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 835

D633W103-ARO

Page 298.57
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

If the low voltage was found at pins:	Replace this equipment:	Using these tasks:
A8 or A7	SPLR PCU (1), M27116	Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

- (b) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

- 1) Remove the tag from the ACE-R.
- (c) Do the Repair Confirmation procedure at the end of this task.
- (5) Do a wiring check for obvious electrical faults in the applicable PCU wiring. Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, do this task to check for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Speedbrake System
- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (b) 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
- (c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

836. Multiple Transducers (Group E Fault R) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13031.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps.
- (a) Monitor the following indications on the flight controls maintenance pages 1 and 2 (on the MFD) (SSM 27-02-15):

EFFECTIVITY
ARO ALL

27-02 TASKS 835-836

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.58
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Indication	Page
SPEEDBRAKE HANDLE POSITION 4	FLIGHT CONTROL PG 1/3
SPOILER POSITION 3	FLIGHT CONTROL PG 2/3
SPOILER POSITION 6	FLIGHT CONTROL PG 2/3
SPOILER POSITION 9	FLIGHT CONTROL PG 2/3
SPOILER POSITION 12	FLIGHT CONTROL PG 2/3

- (b) For the above indications, note the appropriate transducer name for any indications that show an "X" after the transducer value. If an "X" shows after the transducer value, it means that the data is invalid.

NOTE: For example, if the value shown for SPOILER POSITION 3 is "00X", record "SPOILER POSITION 3". This information may be useful during further troubleshooting.

- (c) Do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT:
- (a) 27-Primary Flight Controls, System Test, Speedbrake System
- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (b) 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
- (c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (d) If the maintenance message shows on the ground test display (after the last test), then do the Fault Isolation Procedure below.
- (e) If the maintenance message does not show on the ground test display (after the last test), then there was an intermittent fault.
- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you correct the fault, then apply hydraulic power to all 3 hydraulic systems (AMM TASK 29-11-00-860-801). This will erase the messages.

- (a) Put a tag that reads "SUSPECT" on the right actuator control electronics (ACE-R).
- (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
- (c) Remove the ACE-C and the ACE-R. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-R rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

EFFECTIVITY
ARO ALL

27-02 TASK 836

D633W103-ARO

Page 298.59
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) Do these ground tests on the MAT:
- 1) 27-Primary Flight Controls, System Test, Speedbrake System
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - 3) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (f) If maintenance message 27-13031 does not show on the ground test display (after the last test), the ACE tagged SUSPECT is faulty. Do these steps:
- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
 - 5) Do the Repair Confirmation procedure at the end of this task.
- (g) If maintenance message 27-13031 still shows on the ground test display, the ACE tagged SUSPECT is not faulty. Continue with (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (i) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
NOTE: Make sure you do the ACE Installation Test.
- (j) Remove the tag from the ACE-C.
- (2) Do this check of the excitation circuits for the speedbrake lever and spoiler PCU position transducers:
- NOTE:** Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.
- (a) Do a check for an electrical short to structure ground from the following pins of connectors DM27221AA and DM27221AC (for the ACE-R) at the E5-2 shelf (WDM 27-61-17).

DM27221AC	DM27221AA
pin D4	pin K6
pin E4	pin K5
pin K6	pin A8
pin K5	pin A7
pin A8	
pin A7	

EFFECTIVITY
ARO ALL

27-02 TASK 836

D633W103-ARO

Page 298.60
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(b) If the resistance between of the above pins is not 25-200 ohms, then do these steps:

1) Disconnect the appropriate connector from the table below:

If the electrical short was found at pin:	Disconnect this connector:	To this equipment:
DM27221AC		
D4 or E4	DM27029D	Speed Brake Lever Transducer, M27029
K6 or K5	DM27114	SPLR PCU (6), M27114
A8 or A7	DM27118	SPLR PCU (3), M27118
DM27221AA		
K6 or K5	DM27214	SPLR PCU (9), M27214
A8 or A7	DM27218	SPLR PCU (12), M27218

- 2) Do a check between for an electrical short to structure ground from the connector DM27221AC and DM27221AA at the E5-2 shelf again (WDM 27-61-17):
- 3) If you continue to find an electrical short at connector DM27221AA or DM27221 (for the ACE-R) and the connector that was previously disconnected above (WDM 27-61-17).
- a) Repair the wiring wiring between these pins of connector DM27221AA or DM27221AC (For the ACE-R) and the connector that was previously disconnected above (WDM 27-61-17).

DM27221AC	DM27029D
pin D4	pin 9
pin E4	pin 8

DM27221AC	DM27114
pin K6	pin 8
pin K5	pin 7

DM27221AC	DM27118
pin A8	pin 8
pin A7	pin 7

DM27221AA	DM27214
pin K6	pin 8
pin K5	pin 7

DM27221AA	DM27218
pin A8	pin 8
pin A7	pin 7

b) Re-connect the connectors that was previously disconnected above.

EFFECTIVITY
ARO ALL

27-02 TASK 836

D633W103-ARO

Page 298.61
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- d) Do the Repair Confirmation procedure at the end of this task.

- 4) If you do not continue to find the electrical short at pin A7, A8, K5, or K6 of connector DM27221AA or pin A7, A8, D4, E4, K5, or K6 of connector DM27221AC, then do these steps:

- a) Replace the equipment from the table below:

If the electrical short was found at pin:	Replace this equipment:	Using these tasks:
DM27221AC		
D4 or E4	Speed Brake Lever Transducer, M27029	Speed Brake Lever Transducer Removal, AMM TASK 27-61-02-000-801 Speed Brake Lever Transducer Installation, AMM TASK 27-61-02-400-801
K6 or D5	SPLR PCU (9), M27214	Inboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-07-000-801 Inboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-07-400-801
A8 or A7	SPLR PCU (12), M27218	Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
DM27221AA		
K6 or K5	SPLR PCU (6), M27114	Inboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-07-000-801 Inboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-07-400-801
A8 or A7	SPLR PCU (3), M27118	Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

- b) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- c) Do the Repair Confirmation procedure at the end of this task.

- (c) If the resistance between the above pins of connector DM27221AC or DM27221AA is 25-200 ohms, then continue.

- (3) Do this check for a short between the wires of the excitation circuit for the speedbrake lever and spoiler PCU transducers:

EFFECTIVITY
ARO ALL

27-02 TASK 836

D633W103-ARO

Page 298.62
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (a) Measure the resistance between the following pins of connector DM27221AC and DM27221AA (for the ACE-R) at the E5-2 shelf (WDM 27-61-17).

NOTE: Any transducers recorded as reporting invalid data in the Initial Evaluation should be checked first.

DM27221AC	DM27221AA
pin D4 and pin E4	pin K6 and pin K5
pin K6 and pin K5	pin A8 and pin A7
pin A8 and pin A7	

- (b) If the resistance between any of the above pins of connector DM27221AC or DM27221AA is not 25-200 ohms, then do these steps:

- 1) Disconnect the appropriate connector from the table below.

If the low resistance was found at pins:	Disconnect this connector:	To this equipment:
DM27221AC		
D4 or E4	DM27029D	Speed Brake Lever Transducer, M27029
K6 or K5	DM27114	SPLR PCU (6), M27114
A8 or A7	DM27118	SPLR PCU (3), M27118
DM27221AA		
K6 or K5	DM27214	SPLR PCU (9), M27214
A8 or A7	DM27218	SPLR PCU (12), M27218

- 2) Do a check for continuity between the pins that previously showed low resistance on connector DM27221AC or DM27221AA at the E5-2 shelf (WDM 27-61-17):
- 3) If you still find continuity between the pins that previously showed low resistance on connector DM27221AA or DM27221AC, then do these steps:
- a) Repair the wiring between these pins of connector DM27221AA or DM27221AC (for the ACE-R) and the connector that was previously disconnected above (WDM 27-61-17).

DM27221AC	DM27029D
pin D4	pin 9
pin E4	pin 8

DM27221AC	DM27114
pin K6	pin 8
pin K5	pin 7

DM27221AC	DM27118
pin A8	pin 8
pin A7	pin 7

EFFECTIVITY
ARO ALL

27-02 TASK 836

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.63
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27221AA

pin K6 pin 8
pin K5 pin 7

DM27214**DM27221AA**

pin A8 pin 8
pin A7 pin 7

DM27218

- b) Re-connect the connector that was previously disconnected above.
- c) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

<1> Remove the tag from the ACE-R.

- d) Do the Repair Confirmation procedure at the end of this task.
- 4) If you do not still find continuity between the pins that previously showed low resistance on connector DM27221AA or DM27221AC, then do these steps:
- a) Replace the equipment from the table below:

If the low resistance was found at pins:	Replace this equipment:	Using these tasks:
DM27221AC		
D4 or E4	Speed Brake Lever Transducer, M27029	Speed Brake Lever Transducer Removal, AMM TASK 27-61-02-000-801 Speed Brake Lever Transducer Installation, AMM TASK 27-61-02-400-801
K6 or D5	SPLR PCU (9), M27214	Inboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-07-000-801 Inboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-07-400-801
A8 or A7	SPLR PCU (12), M27218	Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
DM27221AA		
K6 or K5	SPLR PCU (6), M27114	Inboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-07-000-801 Inboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-07-400-801
A8 or A7	SPLR PCU (3), M27118	Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

- b) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: Make sure you do the ACE Installation Test.

EFFECTIVITY
ARO ALL

27-02 TASK 836

D633W103-ARO

Page 298.64
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

<1> Remove the tag from the ACE-R.

c) Do the Repair Confirmation procedure at the end of this task.

- (4) Do this task for obvious electrical faults in the applicable PCU wiring. Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, do this task to check for the applicable PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these ground tests on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Speedbrake System
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - (c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

837. ACE-L2 Flaps Retracted Discrete Disagree (FSEU-1) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13033.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the discrete wiring:

EFFECTIVITY
ARO ALL

27-02 TASKS 836-837

D633W103-ARO

Page 298.65
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- (c) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.
(d) Remove the flap/slat electronics unit 1 (FSEU 1), M27001, from the E1-6 shelf.
(e) Do a wiring check between these pins of connector DM27122AB for the ACE-L2 and connector DM27001AA for FSEU 1 (WDM 27-02-61):

DM27122AB	DM27001AA
pin G5	pin F6

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the FSEU 1, M27001.
 - 3) Re-install the ACE-L2, M27122.

EFFECTIVITY
ARO ALL

27-02 TASK 837

D633W103-ARO

Page 298.66
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- 6) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27122. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASK 837

D633W103-ARO

Page 298.67
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the FSEU 1, M27001. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

838. ACE-C Flaps Retracted Discrete Disagree (FSEU-1) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13034.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the discrete wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

EFFECTIVITY
ARO ALL

27-02 TASKS 837-838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.68
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- (c) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
(d) Remove the flap/slat electronics unit 1 (FSEU 1), M27001, from the E1-6 shelf.
(e) Do a wiring check between these pins of connector DM27321AB for the ACE-C and connector DM27001AA for FSEU 1 (WDM 27-02-61):

DM27321AB	DM27001AA
pin G5	pin G7

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the FSEU 1, M27001.
 - 3) Re-install the ACE-C, M27321.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-02 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.69
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 6) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE-C recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the FSEU 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.

EFFECTIVITY
ARO ALL

27-02 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.70
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

839. ACE-R Flaps Retracted Discrete Disagree (FSEU-1) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13035.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the discrete wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-02 TASKS 838-839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.71
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- (c) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf.
- (d) Remove the flap/slat electronics unit 1 (FSEU 1), M27001, from the E1-6 shelf.
- (e) Do a wiring check between these pins of connector DM27221AB for the ACE-R and connector DM27001AA for FSEU 1 (WDM 27-02-61):

DM27221AB

pin G5

DM27001AA

pin F7

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the FSEU 1, M27001.
 - 3) Re-install the ACE-R, M27221.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU

EFFECTIVITY
ARO ALL

27-02 TASK 839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.72
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the FSEU 1, M27001. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

840. ACE-L1 Flaps Retracted Discrete Disagree (FSEU-2) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13036.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.

EFFECTIVITY
ARO ALL

27-02 TASKS 839-840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.73
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

(1) Do this check of the discrete wiring:

- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- (c) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf.
- (d) Remove the flap/slat electronics unit 2 (FSEU 2), M27002, from the E4-1 shelf.
- (e) Do a wiring check between these pins of connector DM27121AB for the ACE-L1 and connector DM27002AA for FSEU 2 (WDM 27-02-61):

DM27121AB

pin E6

DM27002AA

pin G6

EFFECTIVITY
ARO ALL

27-02 TASK 840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.74
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(f) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the FSEU 2, M27002.
- 3) Re-install the ACE-L1, M27121.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) Do this ground test on the MAT:

- a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
- b) If the maintenance message does not show on the ground test display, you corrected the fault.
- c) If the maintenance message shows on the ground test display, then continue.

(g) If you do not find a problem with the wiring, then continue.

- (2) Exchange the ACE for M27121. This is the task:

- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27

EFFECTIVITY
ARO ALL

27-02 TASK 840

D633W103-ARO

Page 298.75
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

841. ACE-L2 Flaps Retracted Discrete Disagree (FSEU-2) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13037.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the discrete wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

EFFECTIVITY
ARO ALL

27-02 TASKS 840-841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.76
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	28	C27608	ACE-L2 PWR

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- (c) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.
(d) Remove the flap/slat electronics unit 2 (FSEU 2), M27002, from the E4-1 shelf.
(e) Do a wiring check between these pins of connector DM27122AB for the ACE-L2 and connector DM27002AA for FSEU 2 (WDM 27-02-61):

DM27122AB	DM27002AA
pin E6	pin F6

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the FSEU 2, M27002.
 - 3) Re-install the ACE-L2, M27122.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11

EFFECTIVITY
ARO ALL

27-02 TASK 841

D633W103-ARO

Page 298.77
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- 6) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
- 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- 8) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27122. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the FSEU 2, M27002. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASK 841

D633W103-ARO

Page 298.78
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

(a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

842. ACE-C Flaps Retracted Discrete Disagree (FSEU-2) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13038.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the discrete wiring:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-02 TASKS 841-842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.79
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- (c) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
- (d) Remove the flap/slat electronics unit 2 (FSEU 2), M27002, from the E4-1 shelf.
- (e) Do a wiring check between these pins of connector DM27321AB for the ACE-C and connector DM27002AA for FSEU 2 (WDM 27-02-61):

DM27321AB	DM27002AA
pin E6	pin G7

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the FSEU 2, M27002.
 - 3) Re-install the ACE-C, M27321.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-02 TASK 842

D633W103-ARO

Page 298.80
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 6) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE-C recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (4) Replace the FSEU 2, M27002. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

843. ACE-R Flaps Retracted Discrete Disagree (FSEU-2) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13039.

EFFECTIVITY
ARO ALL

27-02 TASKS 842-843

D633W103-ARO

Page 298.81
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the discrete wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- (c) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf.
 - (d) Remove the flap/slat electronics unit 2 (FSEU 2), M27002, from the E4-1 shelf.

EFFECTIVITY
ARO ALL

27-02 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.82
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) Do a wiring check between these pins of connector DM27221AB for the ACE-R and connector DM27002AA for FSEU 2 (WDM 27-02-61):

DM27221AB	DM27002AA
pin E6	pin F7

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the FSEU 2, M27002.
 - 3) Re-install the ACE-R, M27221.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.83
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

844. Flaps Retracted Discrete Signals from FSEU 1 and FSEU 2 Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13040.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:

NOTE: During this test the MAT will ask you to select CONTINUE TEST or CONFIGURE.
Select the CONTINUE TEST alternative.

- (a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - (b) During this test the MAT will ask you to select CONTINUE TEST or CONFIGURE. Select CONFIGURE and then CONTINUE (not CONTINUE TEST).

EFFECTIVITY
ARO ALL

27-02 TASKS 843-844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.84
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Select CONFIGURE and CONTINUE, again, until the MAT shows that the FSEU 1 and the FSEU 2 are set to the RETRACTED position.

NOTE: Look at the instructions at the top of the dialog box (on the MAT screen) to find the position that the FSEUs are set to.

- 1) Look at page 3 of the maintenance pages for the flight controls.
- 2) If the four indications (ACE L1, L2, C, and R) for FSEU 1 TE & LE RETRACTED do not all show YES, then do these steps:
 - a) Replace FSEU 1, M27001. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
 - b) Do this ground test on the MAT:

NOTE: During this test the MAT will ask you to select CONTINUE TEST or CONFIGURE. Select the CONTINUE TEST alternative then select CONTINUE. If this test is in the CONFIGURE mode from the steps above, it is OK to select CONTINUE TEST. It is not necessary to start the test again.
 - c) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - d) If the maintenance message shows on the ground test display, then do the Wiring Repair procedure at the end of this task.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the four indications (on the maintenance page) for FSEU 1 TE & LE RETRACTED all show YES, then continue:
- 4) If the four indications (on the maintenance page) for FSEU 2 TE & LE RETRACTED do not all show YES, then do these steps:
 - a) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
 - b) Do this ground test on the MAT:

NOTE: During this test the MAT will ask you to select CONTINUE TEST or CONFIGURE. Select the CONTINUE TEST alternative then select CONTINUE. If this test is in the CONFIGURE mode from the steps above, it is OK to select CONTINUE TEST. It is not necessary to start the test again.
 - c) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - d) If the maintenance message shows on the ground test display, then do the Wiring Repair procedure at the end of this task.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- 5) If the four indications (on the maintenance page) for FSEU 1 TE & LE RETRACTED all show YES, then continue:

EFFECTIVITY
ARO ALL

27-02 TASK 844

D633W103-ARO

Page 298.85
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) In the test on the MAT, select CONFIGURE and CONTINUE until the MAT shows that the FSEU 1 and the FSEU 2 are set to the NOT RETRACTED position.
- 1) Look at page 3 of the maintenance pages for the flight controls.
 - 2) If the four indications (ACE L1, L2, C, and R) for FSEU 1 TE & LE RETRACTED do not all show NO, then do these steps:
 - a) Replace FSEU 1, M27001. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
 - b) Do this ground test on the MAT:

NOTE: During this test the MAT will ask you to select CONTINUE TEST or CONFIGURE. Select the CONTINUE TEST alternative then select CONTINUE. If this test is in the CONFIGURE mode from the steps above, it is OK to select CONTINUE TEST. It is not necessary to start the test again.
 - c) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - d) If the maintenance message shows on the ground test display, then do the Wiring Repair procedure at the end of this task.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the four indications (on the maintenance page) for FSEU 1 TE & LE RETRACTED all show NO, then continue:
 - 4) If the four indications (on the maintenance page) for FSEU 2 TE & LE RETRACTED do not all show NO, then do these steps:
 - a) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
 - b) Do this ground test on the MAT:

NOTE: During this test the MAT will ask you to select CONTINUE TEST or CONFIGURE. Select the CONTINUE TEST alternative then select CONTINUE. If this test is in the CONFIGURE mode from the steps above, it is OK to select CONTINUE TEST. It is not necessary to start the test again.
 - c) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
 - d) If the maintenance message shows on the ground test display, then do the Wiring Repair procedure at the end of this task.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.

D. Wiring Repair

- (1) Do this ground test on the MAT:
- NOTE: During this test the MAT will ask you to select CONTINUE TEST or CONFIGURE. Select CONFIGURE and then CONTINUE (not CONTINUE TEST).
- (a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.

EFFECTIVITY
ARO ALL

27-02 TASK 844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.86
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Select CONFIGURE and CONTINUE, again, until the MAT shows that the FSEU 1 and the FSEU 2 are set to the RETRACTED position.

NOTE: Look at the instructions at the top of the dialog box (on the MAT screen) to find the position that the FSEUs are set to.

- 1) Look at page 3 of the maintenance pages for the flight controls.
- 2) Look for an indication (FSEU 1 TE & LE RETRACTED or FSEU 2 TE & LE RETRACTED) that shows NO.
- 3) If you find an indication (on the maintenance page) that shows NO, then do these steps:
 - a) Look at the maintenance page to find which FSEU and ACE this indication is for.
 - b) In the list below, find the connector and pin numbers for the applicable FSEU and ACE:

FSEU	ACE	FSEU CONNECTOR		ACE CONNECTOR
1	L1	DM27001AA		DM27121AB
		pin G6	--	pin G5
1	L2	DM27001AA		DM27122AB
		pin F6	--	pin G5
1	C	DM27001AA		DM27321AB
		pin G7	--	pin G5
1	R	DM27001AA		DM27221AB
		pin F7	--	pin G5
2	L1	DM27001AA		DM27121AB
		pin G6	--	pin E6
2	L2	DM27001AA		DM27122AB
		pin F6	--	pin E6
2	C	DM27001AA		DM27321AB
		pin G7	--	pin E6
2	R	DM27001AA		DM27221AB
		pin F7	--	pin E6

- c) Repair the wiring between the specified pins of the applicable FSEU connector and the applicable ACE connector (WDM 27-02-61).
- d) Do this ground test on the MAT:

NOTE: During this test the MAT will ask you to select CONTINUE TEST or CONFIGURE. Select the CONTINUE TEST alternative then select CONTINUE. If this test is in the CONFIGURE mode from the steps above, it is OK to select CONTINUE TEST. It is not necessary to start the test again.
- e) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.

EFFECTIVITY
ARO ALL

27-02 TASK 844

D633W103-ARO

Page 298.87
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find an indication (on the maintenance page) that shows NO, then continue.
- (c) In the test on the MAT, select CONFIGURE and CONTINUE until the MAT shows that the FSEU 1 and the FSEU 2 are set to the NOT RETRACTED position.
 - 1) Look at page 3 of the maintenance pages for the flight controls.
 - 2) Look for an indication (FSEU 1 TE & LE RETRACTED or FSEU 2 TE & LE RETRACTED) that shows YES.
 - 3) If you find an indication (on the maintenance page) that shows YES, then do these steps:
 - a) Look at the maintenance page to find which FSEU and ACE this indication is for.
 - b) In the list below, find the connector and pin numbers for the applicable FSEU and ACE:

FSEU	ACE	FSEU CONNECTOR		ACE CONNECTOR
1	L1	DM27001AA		DM27121AB
		pin G6	--	pin G5
1	L2	DM27001AA		DM27122AB
		pin F6	--	pin G5
1	C	DM27001AA		DM27321AB
		pin G7	--	pin G5
1	R	DM27001AA		DM27221AB
		pin F7	--	pin G5
2	L1	DM27001AA		DM27121AB
		pin G6	--	pin E6
2	L2	DM27001AA		DM27122AB
		pin F6	--	pin E6
2	C	DM27001AA		DM27321AB
		pin G7	--	pin E6
2	R	DM27001AA		DM27221AB
		pin F7	--	pin E6

- c) Repair the wiring between the specified pins of the applicable FSEU connector and the applicable ACE connector (WDM 27-02-61).
- d) Do this ground test on the MAT:

NOTE: During this test the MAT will ask you to select CONTINUE TEST or CONFIGURE. Select the CONTINUE TEST alternative then select CONTINUE. If this test is in the CONFIGURE mode from the steps above, it is OK to select CONTINUE TEST. It is not necessary to start the test again.

EFFECTIVITY
ARO ALL

27-02 TASK 844

D633W103-ARO

Page 298.88
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- e) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit Interface to ACE.
- f) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

845. PFC Disconnect Switch Problems (ACE-L1) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13041.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - (b) If the maintenance message shows on the ground test display, then continue.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
- (2) Set the Primary Flight Controls (PFC) DISC switch to the NORM position.
- (3) Do this task to show the flight control system synoptic page 3 of 3, Showing a System Synoptic Page, AMM TASK 31-61-00-800-816.
 - (a) Compare the values on page 3 of 3 of the Flight Control synoptic page with the values in the table below:

ACE ANALOG DISCRETE	L1	L2	C	R
PFC DISCONNECT SWITCH	AUTO	AUTO	AUTO	AUTO

- (b) If the value of the ACE-L1 signal does not match the expected value, do the Fault Isolation Procedure below. Otherwise, continue.
- (4) Set the Primary Flight Controls (PFC) DISC switch to the DISC position.
 - (a) Compare the values on page 3 of 3 of the Flight Control synoptic page with the values in the table below:

ACE ANALOG DISCRETE	L1	L2	C	R
PFC DISCONNECT SWITCH	DISC	DISC	DISC	DISC

- (b) If the value of the ACE-L1 signal does not match the expected value, set the primary flight controls (PFC) DISC switch to the NORM position and do the Fault Isolation Procedure below. Otherwise, continue.
- (5) Set the Primary Flight Controls (PFC) DISC switch to the NORM position.
 - (a) Compare the values on page 3 of 3 of the Flight Control synoptic page with the values in the table below:

EFFECTIVITY
ARO ALL

27-02 TASKS 844-845

D633W103-ARO

Page 298.89
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

ACE ANALOG DISCRETE	L1	L2	C	R
PFC DISCONNECT SWITCH	AUTO	AUTO	AUTO	AUTO

- (b) If the value of the ACE-L1 signal does not match the expected value, do the Fault Isolation Procedure below. Otherwise, continue.

NOTE: Do not do the following test unless you have sufficient time for troubleshooting. If the ACE monitor test fails, a FLIGHT CONTROL SYS EICAS status message will show. You must clear this message in order to dispatch the aircraft.

- (6) Do this task: Actuator Control Electronics (ACE) Monitor Test, AMM TASK 27-02-02-400-801.
- (a) If the maintenance message shows on the ground test display, do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the switch wiring:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the left power supply assembly (PSA-L), M24101.

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf.
- (c) Disconnect connector DM27042B from the ADIRU/PFC DISC/TAC panel, M27042 (P5 overhead panel).
- (d) Do a wiring check between these pins of connector DM27121AB for the ACE-L1 and connector DM27042B at the ADIRU/PFC DISC/TAC panel (WDM 27-02-49):

DM27121AB	DM27042B
pin F2	pin 6
pin G1	pin 5
pin G2	pin 7

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27042B to the ADIRU/PFC DISC/TAC panel.
 - 3) Re-install the ACE-L1, M27121.

EFFECTIVITY
ARO ALL

27-02 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.90
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the ADIRU/PFC DISC/TAC panel, M27042 (WDM 27-02-49).
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

846. PFC Disconnect Switch Problems (ACE-L2) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13042.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.

EFFECTIVITY
ARO ALL

27-02 TASKS 845-846

D633W103-ARO

Page 298.91
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (b) If the maintenance message shows on the ground test display, then continue.
- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
- (2) Set the Primary Flight Controls (PFC) DISC switch to the NORM position.
- (3) Do this task to show the flight control system synoptic page 3 of 3, Showing a System Synoptic Page, AMM TASK 31-61-00-800-816.
 - (a) Compare the values on page 3 of 3 of the Flight Control synoptic page with the values in the table below:

ACE ANALOG DISCRETE	L1	L2	C	R
PFC DISCONNECT SWITCH	AUTO	AUTO	AUTO	AUTO

- (b) If the value of the ACE-L2 signal does not match the expected value, do the Fault Isolation Procedure below. Otherwise, continue.
- (4) Set the Primary Flight Controls (PFC) DISC switch to the DISC position.
 - (a) Compare the values on page 3 of 3 of the Flight Control synoptic page with the values in the table below:

ACE ANALOG DISCRETE	L1	L2	C	R
PFC DISCONNECT SWITCH	DISC	DISC	DISC	DISC

- (b) If the value of the ACE-L2 signal does not match the expected value, set the primary flight controls (PFC) DISC switch to the NORM position and do the Fault Isolation Procedure below. Otherwise, continue.
- (5) Set the Primary Flight Controls (PFC) DISC switch to the NORM position.
 - (a) Compare the values on page 3 of 3 of the Flight Control synoptic page with the values in the table below:

ACE ANALOG DISCRETE	L1	L2	C	R
PFC DISCONNECT SWITCH	AUTO	AUTO	AUTO	AUTO

- (b) If the value of the ACE-L2 signal does not match the expected value, do the Fault Isolation Procedure below. Otherwise, continue.
 - NOTE:** Do not do the following test unless you have sufficient time for troubleshooting. If the ACE monitor test fails, a FLIGHT CONTROL SYS EICAS status message will show. You must clear this message in order to dispatch the aircraft.
- (6) Do this task: Actuator Control Electronics (ACE) Monitor Test, AMM TASK 27-02-02-400-801.
 - (a) If the maintenance message shows on the ground test display, do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASK 846

D633W103-ARO

Page 298.92
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

(1) Do this check of the switch wiring:

(a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

(b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.

(c) Disconnect connector DM27042B from the ADIRU/PFC DISC/TAC panel, M27042 (P5 overhead panel).

(d) Do a wiring check between these pins of connector DM27122AB for the ACE-L2 and connector DM27042B at the ADIRU/PFC DISC/TAC panel (WDM 27-02-49):

<u>DM27122AB</u>	<u>DM27042B</u>
pin F2	pin 11
pin G1	pin 10
pin G2	pin 12

(e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27042B to the ADIRU/PFC DISC/TAC panel.
- 3) Re-install the ACE-L2, M27122.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

5) Do this ground test on the MAT:

- a) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
- b) If the maintenance message does not show on the ground test display, you corrected the fault.
- c) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.93
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the ADIRU/PFC DISC/TAC panel, M27042 (WDM 27-02-49).
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

847. PFC Disconnect Switch Problems (ACE-C) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13043.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - (b) If the maintenance message shows on the ground test display, then continue.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
- (2) Set the Primary Flight Controls (PFC) DISC switch to the NORM position.
- (3) Do this task to show the flight control system synoptic page 3 of 3, Showing a System Synoptic Page, AMM TASK 31-61-00-800-816.
 - (a) Compare the values on page 3 of 3 of the Flight Control synoptic page with the values in the table below:

ACE ANALOG DISCRETE	L1	L2	C	R
PFC DISCONNECT SWITCH	AUTO	AUTO	AUTO	AUTO

- (b) If the value of the ACE-C signal does not match the expected value, do the Fault Isolation Procedure below. Otherwise, continue.
- (4) Set the Primary Flight Controls (PFC) DISC switch to the DISC position.

EFFECTIVITY
ARO ALL

27-02 TASKS 846-847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.94
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Compare the values on page 3 of 3 of the Flight Control synoptic page with the values in the table below:

ACE ANALOG DISCRETE	L1	L2	C	R
PFC DISCONNECT SWITCH	DISC	DISC	DISC	DISC

- (b) If the value of the ACE-C signal does not match the expected value, set the primary flight controls (PFC) DISC switch to the NORM position and do the Fault Isolation Procedure below. Otherwise, continue.
- (5) Set the Primary Flight Controls (PFC) DISC switch to the NORM position.
- (a) Compare the values on page 3 of 3 of the Flight Control synoptic page with the values in the table below:

ACE ANALOG DISCRETE	L1	L2	C	R
PFC DISCONNECT SWITCH	AUTO	AUTO	AUTO	AUTO

- (b) If the value of the ACE-C signal does not match the expected value, do the Fault Isolation Procedure below. Otherwise, continue.
- NOTE: Do not do the following test unless you have sufficient time for troubleshooting. If the ACE monitor test fails, a FLIGHT CONTROL SYS EICAS status message will show. You must clear this message in order to dispatch the aircraft.
- (6) Do this task: Actuator Control Electronics (ACE) Monitor Test, AMM TASK 27-02-02-400-801.
- (a) If the maintenance message shows on the ground test display, do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the switch wiring:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301.

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
- (c) Disconnect connector DM27042C from the ADIRU/PFC DISC/TAC panel, M27042 (P5 overhead panel).

EFFECTIVITY
ARO ALL

27-02 TASK 847

D633W103-ARO

Page 298.95
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins of connector DM27321AB for the ACE-C and connector DM27042C at the ADIRU/PFC DISC/TAC panel (WDM 27-02-50):

DM27321AB	DM27042C
pin F2	pin 4
pin G1	pin 12
pin G2	pin 5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27042C to the ADIRU/PFC DISC/TAC panel.
 - 3) Re-install the ACE-C, M27321.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE-C recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the ADIRU/PFC DISC/TAC panel, M27042 (WDM 27-02-50).
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.

EFFECTIVITY
ARO ALL

27-02 TASK 847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.96
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

848. PFC Disconnect Switch Problems (ACE-R) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13044.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - (b) If the maintenance message shows on the ground test display, then continue.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
- (2) Set the Primary Flight Controls (PFC) DISC switch to the NORM position.
- (3) Do this task to show the flight control system synoptic page 3 of 3, Showing a System Synoptic Page, AMM TASK 31-61-00-800-816.
- (a) Compare the values on page 3 of 3 of the Flight Control synoptic page with the values in the table below:

ACE ANALOG DISCRETE	L1	L2	C	R
PFC DISCONNECT SWITCH	AUTO	AUTO	AUTO	AUTO

- (b) If the value of the ACE-R signal does not match the expected value, do the Fault Isolation Procedure below. Otherwise, continue.
- (4) Set the Primary Flight Controls (PFC) DISC switch to the DISC position.
- (a) Compare the values on page 3 of 3 of the Flight Control synoptic page with the values in the table below:

ACE ANALOG DISCRETE	L1	L2	C	R
PFC DISCONNECT SWITCH	DISC	DISC	DISC	DISC

- (b) If the value of the ACE-R signal does not match the expected value, set the primary flight controls (PFC) DISC switch to the NORM position and do the Fault Isolation Procedure below. Otherwise, continue.
- (5) Set the Primary Flight Controls (PFC) DISC switch to the NORM position.
- (a) Compare the values on page 3 of 3 of the Flight Control synoptic page with the values in the table below:

ACE ANALOG DISCRETE	L1	L2	C	R
PFC DISCONNECT SWITCH	AUTO	AUTO	AUTO	AUTO

EFFECTIVITY
ARO ALL

27-02 TASKS 847-848

D633W103-ARO

Page 298.97
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the value of the ACE-R signal does not match the expected value, do the Fault Isolation Procedure below. Otherwise, continue.

NOTE: Do not do the following test unless you have sufficient time for troubleshooting. If the ACE monitor test fails, a FLIGHT CONTROL SYS EICAS status message will show. You must clear this message in order to dispatch the aircraft.

- (6) Do this task: Actuator Control Electronics (ACE) Monitor Test, AMM TASK 27-02-02-400-801.
- (a) If the maintenance message shows on the ground test display, do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the switch wiring:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf.
- (c) Disconnect connector DM27042C from the ADIRU/PFC DISC/TAC panel, M27042 (P5 overhead panel).
- (d) Do a wiring check between these pins of connector DM27221AB for the ACE-R and connector DM27042C at the ADIRU/PFC DISC/TAC panel (WDM 27-02-50):

DM27221AB		DM27042C	
pin F2	.....	pin 8	
pin G1	.....	pin 7	
pin G2	.....	pin 9	

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27042C to the ADIRU/PFC DISC/TAC panel.
 - 3) Re-install the ACE-R, M27221.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU

EFFECTIVITY
ARO ALL

27-02 TASK 848

D633W103-ARO

Page 298.98
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
 - f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the ADIRU/PFC DISC/TAC panel, M27042 (WDM 27-02-50).
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, PFC Disconnect Switch.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

849. ACE-L2 Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15010.

B. Initial Evaluation

- (1) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	28	C27608	ACE-L2 PWR

- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 848-849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.99
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Open the P110 left power management panel.
 - (b) Do a check for 28V DC from the circuit breaker C27608 to structure ground.
 - (c) If there is not 28V DC at the circuit breaker C27608, then do these steps:
 - 1) Replace this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	28	C27608	ACE-L2 PWR

- 2) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If there is 28V DC at the circuit breaker C27608, then continue.
- (2) Do this check of the wiring:
 - (a) Disconnect connector D11013P from the P110 left power management panel.
 - (b) Remove the left 2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (c) Do a wiring check between these pins of connector DM27122AB at the E1-1 and connector D11013P at the P110 panel (WDM 27-02-32):

DM27122AB	D11013P
pin A1	pin 5

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-connect connector D11013P.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 849

D633W103-ARO

Page 298.100
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- c) If the maintenance message shows on the ground test display, then continue.
- e) If you do not find a problem with the wiring, then continue.
- (3) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect connector D11013P.
 - (b) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.

END OF TASK

850. ACE-C Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15011.

B. Initial Evaluation

- (1) Close this circuit breaker on the center Power Supply Assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR

- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the center power supply assembly (PSA-C), M24301.

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	8	CBD8-C	PFC BAT INTLK

- (b) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (c) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

EFFECTIVITY
ARO ALL

27-02 TASKS 849-850

D633W103-ARO

Page 298.101
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins of connector DM27321AB for the E2-5 shelf and connector DM24301AD at the E2-6 shelf (WDM 27-02-33):

DM27321AB	DM24301AD
pin A1	pin 5

- (e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 3) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 4) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	8	CBD8-C	PFC BAT INTLK

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.

- (f) If you do not find a problem with the wiring, then continue.

- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (b) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	8	CBD8-C	PFC BAT INTLK

- (c) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.

- (3) Replace the PSA-C, M24301. These are the tasks:

- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
- Power Supply Assembly Installation, AMM TASK 24-35-01-400-801

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.

EFFECTIVITY
ARO ALL

27-02 TASK 850

D633W103-ARO

Page 298.102
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

851. **ACE-C Circuit Breaker Open - Fault Isolation**

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15012.

B. Initial Evaluation

- (1) Close this circuit breaker on the right Power Supply Assembly (PSA-R), M24201:
 - (a) A1, ACE PWR
- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the right power supply assembly (PSA-R), M24201.

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- (b) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (c) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector DM27221AB for the E5-2 shelf and connector DM24201AD at the E5-1 shelf (WDM 27-02-34):

DM27221AB	DM24201AD
pin A1	pin 5

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.

EFFECTIVITY
ARO ALL

27-02 TASKS 850-851

D633W103-ARO

Page 298.103
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- 5) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- (c) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-R, M24201. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

852. PFC-L Lane 2 Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15001.

B. Initial Evaluation

- (1) Close this circuit breaker on the left Power Supply Assembly (PSA-L), M24101:
- D4, PFC LANE 2
- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 851-852

D633W103-ARO

Page 298.104
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Remove the PSA-L, M24101, from the E1-6 shelf. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Remove the left primary flight computer (PFC-L), M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (c) Do a wiring check between these pins of connector DM27106AB for the, PFC-L and connector DM24101AD at the PSA-L (WDM 27-02-31):

DM27106AB	DM24101AD
pin B5	pin 8

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the, PFC-L, M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Replace the, PFC-L, M27106. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASK 852

D633W103-ARO

Page 298.105
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-L, M24101. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

853. PFC-L Lane 3 Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15002.

B. Initial Evaluation

- (1) Close this circuit breaker on the left Power Supply Assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	CBD6-L	PFC LANE 3

- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Remove the PSA-L, M24101, from the E1-6 shelf. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Remove the left primary flight computer (PFC-L), M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (c) Do a wiring check between these pins of connector DM27106AB for the, PFC-L and connector DM24101AD at the PSA-L (WDM 27-02-31):

EFFECTIVITY
ARO ALL

27-02 TASKS 852-853

D633W103-ARO

Page 298.106
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27106AB

pin B8

DM24101AD

pin 13

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the, PFC-L, M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Replace the, PFC-L, M27106. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-L, M24101. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-02 TASK 853

D633W103-ARO

Page 298.107
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

854. PFC-C Lane 1 Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15003.

B. Initial Evaluation

- (1) Close this circuit breaker on the center Power Supply Assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1

- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Remove the PSA-C, M24301, from the E2-6 shelf. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Remove the center primary flight computer (PFC-C), M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (c) Do a wiring check between these pins of connector DM27306AB at the E2-6 shelf and connector DM24301AD at the E2-6 shelf (WDM 27-02-33):

DM27306AB	DM24301AD
pin B2	pin 3

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PFC-C, M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 3) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3

EFFECTIVITY
ARO ALL

27-02 TASK 854

D633W103-ARO

Page 298.108
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Replace the PFC-C, M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-C, M24301. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

855. PFC-C Lane 2 Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15004.

B. Initial Evaluation

- (1) Close this circuit breaker on the center Power Supply Assembly (PSA-C), M24301:
 - (a) D4, PFC LANE 2
- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS 854-855

D633W103-ARO

Page 298.109
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Remove the PSA-C, M24301, from the E2-6 shelf. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Remove the center primary flight computer (PFC-C), M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (c) Do a wiring check between these pins of connector DM27306AB at the E2-6 shelf and connector DM24301AD at the E2-6 shelf (WDM 27-02-33):

DM27306AB	DM24301AD
pin B5	pin 8

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PFC-C, M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 3) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Replace the PFC-C, M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASK 855

D633W103-ARO

Page 298.110
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-C, M24301. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

856. PFC-C Lane 3 Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15005.

B. Initial Evaluation

- (1) Close this circuit breaker on the center Power Supply Assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	CBD6-C	PFC LANE 3

- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Remove the PSA-C, M24301, from the E2-6 shelf. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Remove the center primary flight computer (PFC-C), M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (c) Do a wiring check between these pins of connector DM27306AB at the E2-6 shelf and connector DM24301AD at the E2-6 shelf (WDM 27-02-33):

DM27306AB	DM24301AD
pin B8	pin 13

- (d) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-02 TASKS 855-856

D633W103-ARO

Page 298.111
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-install the PFC-C, M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 3) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Replace the PFC-C, M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-C, M24301. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

857. PFC-R Lane 1 Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15006.

EFFECTIVITY
ARO ALL

27-02 TASKS 856-857

D633W103-ARO

Page 298.112
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Close this circuit breaker on the right Power Supply Assembly (PSA-R), M24201:
 - (a) D2, PFC LANE 1
- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Remove the PSA-R, M24301, from the E5-1 shelf. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Remove the right primary flight computer (PFC-R), M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (c) Do a wiring check between these pins of connector DM27206AB at the E16-1 shelf and connector DM24201AD at the E5-1 shelf (WDM 27-02-34):

DM27206AB

DM24201AD

pin B2 pin 3

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PFC-R, M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 3) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 857

D633W103-ARO

Page 298.113
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- c) If the maintenance message shows on the ground test display, then continue.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Replace the PFC-R, M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-R, M24201. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

858. PFC-R Lane 2 Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15007.

B. Initial Evaluation

- (1) Close this circuit breaker on the right Power Supply Assembly (PSA-R), M24201

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	CBD4-R	PFC LANE 2

- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Remove the PSA-R, M24301, from the E5-1 shelf. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.

EFFECTIVITY
ARO ALL

27-02 TASKS 857-858

D633W103-ARO

Page 298.114
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Remove the right primary flight computer (PFC-R), M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Do a wiring check between these pins of connector DM27206AB at the E16-1 shelf and connector DM24201AD at the E5-1 shelf (WDM 27-02-34):

DM27206AB	DM24201AD
pin B5	pin 8

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the PFC-R, M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 3) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Replace the PFC-R, M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-R, M24201. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASK 858

D633W103-ARO

Page 298.115
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

859. PFC-R Lane 3 Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15008.

B. Initial Evaluation

- (1) Close this circuit breaker on the right Power Supply Assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	CBD6-R	PFC LANE 3

- (2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (3) If the MAT shows ACTIVE for the maintenance message on the ground test display, then do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Remove the PSA-R, M24301, from the E5-1 shelf. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Remove the right primary flight computer (PFC-R), M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (c) Do a wiring check between these pins of connector DM27206AB at the E16-1 shelf and connector DM24201AD at the E5-1 shelf (WDM 27-02-34):

DM27206AB	DM24201AD
pin B8	pin 13

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PFC-R, M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 3) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.

EFFECTIVITY
ARO ALL

27-02 TASKS 858-859

D633W103-ARO

Page 298.116
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- 5) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Replace the PFC-R, M27206. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-R, M24201. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

860. PFC-L Lane 2 Transmit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14004.

B. Initial Evaluation

- If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS 859-860

D633W103-ARO

Page 298.117
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the ARINC 629 coupler, B27021, in the P112 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801
- NOTE:** This coupler connects the, PFC-L to the FLT CTRL 629 BUS-L.
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the wiring from the, PFC-L to the coupler:
 - (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, and install DO-NOT-CLOSE tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- (c) Remove the, PFC-L, M27106, from the E1-6 shelf. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.

EFFECTIVITY
ARO ALL

27-02 TASK 860

D633W103-ARO

Page 298.118
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Disconnect connector DB27021 from the ARINC 629 coupler, B27021.
- (e) Do a wiring check between these pins of connector DM27106AA for the PFC-L and connector DB27021 at the ARINC 629 coupler, B27021 (WDM 27-02-41):

DM27106AA	DB27021
pin 9T	pin 5
pin 9TR	pin 4
pin 10T	pin 2
pin 10TR	pin 1

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Replace the wiring.
 - 2) Re-connect connector DB27021 to the ARINC 629 coupler.
 - 3) Re-install the, PFC-L, M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

Row	Col	Number	Name
M	4	C24675	L PSA BAT PWR

- 6) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

861. PFC-L Lane 3 Transmit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14005.

EFFECTIVITY
ARO ALL

27-02 TASKS 860-861

D633W103-ARO

Page 298.119
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the ARINC 629 coupler, B27031, in the P112 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the, PFC-L to the FLT CTRL 629 BUS-L.

 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the wiring from the, PFC-L to the coupler:
 - (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, and install DO-NOT-CLOSE tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

EFFECTIVITY
ARO ALL

27-02 TASK 861

D633W103-ARO

Page 298.120
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- (c) Remove the, PFC-L, M27106, from the E1-6 shelf. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (d) Disconnect connector DB27031 from the ARINC 629 coupler, B27031.
- (e) Do a wiring check between these pins of connector DM27106AA for the PFC-L and connector DB27031 at the ARINC 629 coupler, B27031 (WDM 27-02-41):

DM27106AA	DB27031
pin 8T	pin 5
pin 8TR	pin 4
pin 7T	pin 2
pin 7TR	pin 1

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Replace the wiring.
 - 2) Re-connect connector DB27031 to the ARINC 629 coupler.
 - 3) Re-install the, PFC-L, M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- 6) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-02 TASK 861

D633W103-ARO

Page 298.121
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

862. ACE-L2 No Output On Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-13047, 27-18815.

B. Initial Evaluation

- (1) Do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
 - (3) Replace the ARINC 629 coupler, B27121, in the P112 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801
- NOTE: This coupler connects the ACE-L2 to the Flt Ctrl 629 Bus-L.
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
 - (4) Do this check of the wiring from the ACE-L2 to the coupler:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

EFFECTIVITY
ARO ALL

27-02 TASK 862

D633W103-ARO

Page 298.122
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122.
- (c) Disconnect connector DB27121 from the coupler, B27121.
- (d) Do a wiring check between these pins of connector DM27122AD at the E1-1 shelf and connector DB27121 at the P112 panel (WDM 27-02-42):

<u>DM27122AD</u>	<u>DB27121</u>
pin 5T	pin 5
pin 5TR	pin 4
pin 2T	pin 2
pin 2TR	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27121.
 - 3) Re-install the ACE-L2, M27122.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

863. ACE-C No Output On Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-13048, 27-18826.

EFFECTIVITY
ARO ALL

27-02 TASKS 862-863

D633W103-ARO

Page 298.123
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
NOTE: After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (3) Replace the ARINC 629 coupler, B27143, in the P312 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the ACE-C to the Flt Ctrl 629 Bus-C.
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (4) Do this check of the wiring from the ACE-C to the coupler:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301.

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321.

EFFECTIVITY
ARO ALL

27-02 TASK 863

D633W103-ARO

Page 298.124
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (c) Disconnect connector DB27143 from the coupler, B27143.
- (d) Do a wiring check between these pins of connector DM27321AD at the E2-5 shelf and connector DB27143 at the P312 panel (WDM 27-02-46):

DM27321AD		DB27143	
pin 5T	.....	pin 5	
pin 5TR	.....	pin 4	
pin 2T	.....	pin 2	
pin 2TR	.....	pin 1	

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27143.
 - 3) Re-install the ACE-C, M27321.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.

———— **END OF TASK** ————

864. ACE-R No Output On Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-13049, 27-18837.

B. Initial Evaluation

- (1) Do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 863-864

D633W103-ARO

Page 298.125
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
 - (3) Replace the ARINC 629 coupler, B27132, in the P212 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801
- NOTE:** This coupler connects the ACE-R to the Flt Ctrl 629 Bus-R.
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
 - (4) Do this check of the wiring from the ACE-R to the coupler:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201.

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221.
- (c) Disconnect connector DB27132 from the coupler, B27132.
- (d) Do a wiring check between these pins of connector DM27221AD at the E5-2 shelf and connector DB27132 at the P212 panel (WDM 27-02-44):

DM27221AD	DB27132
pin 5T	pin 5
pin 5TR	pin 4
pin 2T	pin 2
pin 2TR	pin 1

EFFECTIVITY
ARO ALL

27-02 TASK 864

D633W103-ARO

Page 298.126
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27132.
 - 3) Re-install the ACE-R, M27221.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

865. ACE-L1 No Input On Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13050.

B. Initial Evaluation

NOTE: This message can occur when one primary flight computer (PFC) is deactivated and the other 2 PFCs operate normally (this is referred to as a 3:3:0 configuration). If the airplane is in the 3:3:0 configuration per the Dispatch Deviation Guide you can ignore this maintenance message.

- (1) Do this ground test on the MAT:
- (a) 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - (b) If the maintenance message shows on the ground test display, then do the fault isolation procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASKS 864-865

D633W103-ARO

Page 298.127
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the ARINC 629 coupler, B27111, in the P112 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the ACE-L1 to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the wiring from the ACE-L1 to the coupler:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the left power supply assembly (PSA-L), M24101.

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121.
- (c) Disconnect connector DB27111 from the coupler, B27111.
- (d) Do a wiring check between these pins of connector DM27121AD at the E1-5 shelf and connector DB27111 at the P112 panel (WDM 27-02-42):

DM27121AD	DB27111
pin 5T	pin 5
pin 5TR	pin 4
pin 2T	pin 2
pin 2TR	pin 1

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27111.
 - 3) Re-install the ACE-L1, M27121.

EFFECTIVITY
ARO ALL

27-02 TASK 865

D633W103-ARO

Page 298.128
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPD BRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT:
- 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

866. ACE-L1 No Input On Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13051.

B. Initial Evaluation

NOTE: This message can occur when one primary flight computer (PFC) is deactivated and the other 2 PFCs operate normally (this is referred to as a 3:3:0 configuration). If the airplane is in the 3:3:0 configuration per the Dispatch Deviation Guide you can ignore this maintenance message.

- (1) Do this ground test on the MAT:
- 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message shows on the ground test display, then do the fault isolation procedure below.
 - If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
- 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-02 TASKS 865-866

D633W103-ARO

Page 298.129
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Replace the ARINC 629 coupler, B27113, in the P312 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the ACE-L1 to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the wiring from the ACE-L1 to the coupler:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the left power supply assembly (PSA-L), M24101.

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121.
- (c) Disconnect connector DB27113 from the coupler, B27113.
- (d) Do a wiring check between these pins of connector DM27121AD at the E1-5 shelf and connector DB27113 at the P312 panel (WDM 27-02-46):

DM27121AD	DB27113
pin 4T	pin 5
pin 4TR	pin 4
pin 1T	pin 2
pin 1TR	pin 1

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27113.
 - 3) Re-install the ACE-L1, M27121.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU

EFFECTIVITY
ARO ALL

27-02 TASK 866

D633W103-ARO

Page 298.130
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT:
- 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

867. ACE-L1 No Input On Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13052.

B. Initial Evaluation

NOTE: This message can occur when one primary flight computer (PFC) is deactivated and the other 2 PFCs operate normally (this is referred to as a 3:3:0 configuration). If the airplane is in the 3:3:0 configuration per the Dispatch Deviation Guide you can ignore this maintenance message.

- (1) Do this ground test on the MAT:
- 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message shows on the ground test display, then do the fault isolation procedure below.
 - If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
- 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (3) Replace the ARINC 629 coupler, B27112, in the P212 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS 866-867

D633W103-ARO

Page 298.131
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the ACE-L1 to the Flt Ctrl 629 Bus-R.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the wiring from the ACE-L1 to the coupler:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the left power supply assembly (PSA-L), M24101.

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121.
- (c) Disconnect connector DB27112 from the coupler, B27112.
- (d) Do a wiring check between these pins of connector DM27121AD at the E1-5 shelf and connector DB27112 at the P212 panel (WDM 27-02-44):

DM27121AD	DB27112
pin 6T	pin 5
pin 6TR	pin 4
pin 3T	pin 2
pin 3TR	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27112.
 - 3) Re-install the ACE-L1, M27121.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU

EFFECTIVITY
ARO ALL

27-02 TASK 867

D633W103-ARO

Page 298.132
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT:
- 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

868. ACE-L2 No Input On Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13053.

B. Initial Evaluation

NOTE: This message can occur when one primary flight computer (PFC) is deactivated and the other 2 PFCs operate normally (this is referred to as a 3:3:0 configuration). If the airplane is in the 3:3:0 configuration per the Dispatch Deviation Guide you can ignore this maintenance message.

- (1) Do this ground test on the MAT:
- 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message shows on the ground test display, then do the fault isolation procedure below.
 - If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
- 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (3) Replace the ARINC 629 coupler, B27121, in the P112 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the ACE-L2 to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASKS 867-868

D633W103-ARO

Page 298.133
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the wiring from the ACE-L2 to the coupler:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122.
- (c) Disconnect connector DB27121 from the coupler, B27121.
- (d) Do a wiring check between these pins of connector DM27122AD at the E1-1 shelf and connector DB27121 at the P112 panel (WDM 27-02-42):

DM27122AD	DB27121
pin 5T	pin 5
pin 5TR	pin 4
pin 2T	pin 2
pin 2TR	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27121.
 - 3) Re-install the ACE-L2, M27122.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.

EFFECTIVITY
ARO ALL

27-02 TASK 868

D633W103-ARO

Page 298.134
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) If the maintenance message does not show on the ground test display, you corrected the fault.

— END OF TASK —

869. ACE-L2 No Input On Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13054.

B. Initial Evaluation

NOTE: This message can occur when one primary flight computer (PFC) is deactivated and the other 2 PFCs operate normally (this is referred to as a 3:3:0 configuration). If the airplane is in the 3:3:0 configuration per the Dispatch Deviation Guide you can ignore this maintenance message.

- (1) Do this ground test on the MAT:
- (a) 27-Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - (b) If the maintenance message shows on the ground test display, then do the fault isolation procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
- 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the ARINC 629 coupler, B27123, in the P312 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801
- NOTE:** This coupler connects the ACE-L2 to the Flt Ctrl 629 Bus-C.
- (a) Do this ground test on the MAT:
- 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the wiring from the ACE-L2 to the coupler:

EFFECTIVITY
ARO ALL

27-02 TASKS 868-869

D633W103-ARO

Page 298.135
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122.
(c) Disconnect connector DB27123 from the coupler, B27123.
(d) Do a wiring check between these pins of connector DM27122AD at the E1-1 shelf and connector DB27123 at the P312 panel (WDM 27-02-46):

DM27122AD	DB27123
pin 6T	pin 5
pin 6TR	pin 4
pin 3T	pin 2
pin 3TR	pin 1

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27123.
 - 3) Re-install the ACE-L2, M27122.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT:
- a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-02 TASK 869

D633W103-ARO

Page 298.136
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

870. ACE-L2 No Input On Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13055.

B. Initial Evaluation

NOTE: This message can occur when one primary flight computer (PFC) is deactivated and the other 2 PFCs operate normally (this is referred to as a 3:3:0 configuration). If the airplane is in the 3:3:0 configuration per the Dispatch Deviation Guide you can ignore this maintenance message.

- (1) Do this ground test on the MAT:
 - (a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - (b) If the maintenance message shows on the ground test display, then do the fault isolation procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT:
 - 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the ARINC 629 coupler, B27122, in the P212 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the ACE-L2 to the Flt Ctrl 629 Bus-R.

 - (a) Do this ground test on the MAT:
 - 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the wiring from the ACE-L2 to the coupler:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR

EFFECTIVITY
ARO ALL

27-02 TASK 870

D633W103-ARO

Page 298.137
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122.
- (c) Disconnect connector DB27122 from the coupler, B27122.
- (d) Do a wiring check between these pins of connector DM27122AD at the E1-1 shelf and connector DB27122 at the P212 panel (WDM 27-02-44):

<u>DM27122AD</u>	<u>DB27122</u>
pin 4T	pin 5
pin 4TR	pin 4
pin 1T	pin 2
pin 1TR	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27122.
 - 3) Re-install the ACE-L2, M27122.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT:
 - a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

871. ACE-C No Input On Flt Ctrl 629 Bus-L - Fault Isolation

A. **Maintenance Messages**

- (1) This task is for maintenance message: 27-13056.

EFFECTIVITY
ARO ALL

27-02 TASKS 870-871

D633W103-ARO

Page 298.138
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: This message can occur when one primary flight computer (PFC) is deactivated and the other 2 PFCs operate normally (this is referred to as a 3:3:0 configuration). If the airplane is in the 3:3:0 configuration per the Dispatch Deviation Guide you can ignore this maintenance message.

- (1) Do this ground test on the MAT:
 - (a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - (b) If the maintenance message shows on the ground test display, then do the fault isolation procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the ARINC 629 coupler, B27141, in the P112 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the ACE-C to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:
 - 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the wiring from the ACE-C to the coupler:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301.

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM

EFFECTIVITY
ARO ALL

27-02 TASK 871

D633W103-ARO

Page 298.139
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321.
- (c) Disconnect connector DB27141 from the coupler, B27141.
- (d) Do a wiring check between these pins of connector DM27321AD at the E2-5 shelf and connector DB27141 at the P112 panel (WDM 27-02-42):

DM27321AD	DB27141
pin 6T	pin 5
pin 6TR	pin 4
pin 3T	pin 2
pin 3TR	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27141.
 - 3) Re-install the ACE-C, M27321.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT:
 - a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

872. ACE-C No Input On Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13057.

B. Initial Evaluation

NOTE: This message can occur when one primary flight computer (PFC) is deactivated and the other 2 PFCs operate normally (this is referred to as a 3:3:0 configuration). If the airplane is in the 3:3:0 configuration per the Dispatch Deviation Guide you can ignore this maintenance message.

EFFECTIVITY
ARO ALL

27-02 TASKS 871-872

D633W103-ARO

Page 298.140
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (1) Do this ground test on the MAT:
 - (a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - (b) If the maintenance message shows on the ground test display, then do the fault isolation procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the ARINC 629 coupler, B27143, in the P312 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the ACE-C to the Flt Ctrl 629 Bus-C.
- (a) Do this ground test on the MAT:
 - 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the wiring from the ACE-C to the coupler:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301.

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321.
- (c) Disconnect connector DB27143 from the coupler, B27143.

EFFECTIVITY
ARO ALL

27-02 TASK 872

D633W103-ARO

Page 298.141
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins of connector DM27321AD at the E2-5 shelf and connector DB27143 at the P312 panel (WDM 27-02-46):

DM27321AD	DB27143
pin 5T	pin 5
pin 5TR	pin 4
pin 2T	pin 2
pin 2TR	pin 1

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27143.
 - 3) Re-install the ACE-C, M27321.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT:
- a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

873. ACE-C No Input On Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13058.

B. Initial Evaluation

NOTE: This message can occur when one primary flight computer (PFC) is deactivated and the other 2 PFCs operate normally (this is referred to as a 3:3:0 configuration). If the airplane is in the 3:3:0 configuration per the Dispatch Deviation Guide you can ignore this maintenance message.

- (1) Do this ground test on the MAT:
- (a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - (b) If the maintenance message shows on the ground test display, then do the fault isolation procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 872-873

D633W103-ARO

Page 298.142
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT:
 - 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
 - (3) Replace the ARINC 629 coupler, B27142, in the P212 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801
- NOTE:** This coupler connects the ACE-C to the Flt Ctrl 629 Bus-R.
- (a) Do this ground test on the MAT:
 - 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
 - (4) Do this check of the wiring from the ACE-C to the coupler:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the Center power supply assembly (PSA-C), M24301.

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321.
- (c) Disconnect connector DB27142 from the coupler, B27142.
- (d) Do a wiring check between these pins of connector DM27321AD at the E2-5 shelf and connector DB27142 at the P212 panel (WDM 27-02-44):

DM27321AD	DB27142
pin 4T	pin 5
pin 4TR	pin 4
pin 1T	pin 2
pin 1TR	pin 1

EFFECTIVITY
ARO ALL

27-02 TASK 873

D633W103-ARO

Page 298.143
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27142.
 - 3) Re-install the ACE-C, M27321.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT:
- a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

874. ACE-R No Input On Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13059.

B. Initial Evaluation

NOTE: This message can occur when one primary flight computer (PFC) is deactivated and the other 2 PFCs operate normally (this is referred to as a 3:3:0 configuration). If the airplane is in the 3:3:0 configuration per the Dispatch Deviation Guide you can ignore this maintenance message.

- (1) Do this ground test on the MAT:
- (a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - (b) If the maintenance message shows on the ground test display, then do the fault isolation procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASKS 873-874

D633W103-ARO

Page 298.144
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the ground test display, then continue.

(3) Replace the ARINC 629 coupler, B27131, in the P112 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the ACE-R to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:
 - 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the wiring from the ACE-R to the coupler:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201.

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221.
- (c) Disconnect connector DB27131 from the coupler, B27131.
- (d) Do a wiring check between these pins of connector DM27221AD at the E5-2 shelf and connector DB27131 at the P112 panel (WDM 27-02-42):

DM27221AD	DB27131
pin 6T	pin 5
pin 6TR	pin 4
pin 3T	pin 2
pin 3TR	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27131.
 - 3) Re-install the ACE-R, M27221.

EFFECTIVITY
ARO ALL

27-02 TASK 874

D633W103-ARO

Page 298.145
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT:
- 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

875. ACE-R No Input On Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13060.

B. Initial Evaluation

NOTE: This message can occur when one primary flight computer (PFC) is deactivated and the other 2 PFCs operate normally (this is referred to as a 3:3:0 configuration). If the airplane is in the 3:3:0 configuration per the Dispatch Deviation Guide you can ignore this maintenance message.

- (1) Do this ground test on the MAT:
- 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message shows on the ground test display, then do the fault isolation procedure below.
 - If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
- 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (3) Replace the ARINC 629 coupler, B27133, in the P312 panel. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASKS 874-875

D633W103-ARO

Page 298.146
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the ACE-R to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:
- 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the wiring from the ACE-R to the coupler:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201.

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221.
- (c) Disconnect connector DB27133 from the coupler, B27133.
- (d) Do a wiring check between these pins of connector DM27221AD at the E5-2 shelf and connector DB27133 at the P312 panel (WDM 27-02-46):

<u>DM27221AD</u>	<u>DB27133</u>
pin 4T	pin 5
pin 4TR	pin 4
pin 1T	pin 2
pin 1TR	pin 1

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27133.
 - 3) Re-install the ACE-R, M27221.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU

EFFECTIVITY
ARO ALL

27-02 TASK 875

D633W103-ARO

Page 298.147
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT:
 - a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

876. ACE-R No Input On Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13061.

B. Initial Evaluation

NOTE: This message can occur when one primary flight computer (PFC) is deactivated and the other 2 PFCs operate normally (this is referred to as a 3:3:0 configuration). If the airplane is in the 3:3:0 configuration per the Dispatch Deviation Guide you can ignore this maintenance message.

- (1) Do this ground test on the MAT:
 - (a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - (b) If the maintenance message shows on the ground test display, then do the fault isolation procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the ARINC 629 coupler, B27132, in the P212 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the ACE-R to the Flt Ctrl 629 Bus-R.

- (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASKS 875-876

D633W103-ARO

Page 298.148
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the wiring from the ACE-R to the coupler:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201.

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221.
- (c) Disconnect connector DB27132 from the coupler, B27132.
- (d) Do a wiring check between these pins of connector DM27221AD at the E5-2 shelf and connector DB27132 at the P212 panel (WDM 27-02-44):

DM27221AD	DB27132
pin 5T	pin 5
pin 5TR	pin 4
pin 2T	pin 2
pin 2TR	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect connector DB27132.
 - 3) Re-install the ACE-R, M27221.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT:
 - a) 27 Primary Flight Control, System Test, Actuator Control Electronics Monitor.

EFFECTIVITY
ARO ALL

27-02 TASK 876

D633W103-ARO

Page 298.149
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

877. ACE-L2 Inoperative - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13009.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
- (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
- (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 2) If the maintenance message does not show on the MAT, then you corrected the fault.
- 3) If the maintenance message shows on the MAT, then continue.
- (3) Do this check of the wiring for the ACE:
- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122, from the E1-1 shelf.

EFFECTIVITY
ARO ALL

27-02 TASKS 876-877

D633W103-ARO

Page 298.150
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (c) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	28	C27608	ACE-L2 PWR

- (d) Do a check for 28 VDC from pin A1 to pin A2 of connector DM27122AB (the connector for ACE-L2 at E1-1 shelf) (WDM 27-02-32):
- (e) If there is not 28 VDC from pin A1 to pin A2 of connector DM27122AB, then do these steps:
- 1) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	28	C27608	ACE-L2 PWR

- 2) Do a wiring check between these pins of connector DM27122AB (the connector for ACE-L2) and this circuit breaker C27608 (WDM 27-02-32):

DM27122AB	C27608
pin A1	term 2

- 3) Do a continuity check between pin A2 of connector DM27122AB (the connector for the ACE-L2) and structure ground (WDM 27-02-32) (WDM 24-09-24):
- 4) If you find a problem with the wiring, then do these steps:
- a) Repair the wiring.
- b) Re-install the ACE-L2, M27122.
- c) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- d) Do this ground test on the MAT:
- <1> 27-Primary Flight Controls, System Test, Transmitter Reset.
- e) If the maintenance message does not show on the MAT, then you corrected the fault.
- (f) If there is 28 VDC from pin A1 to pin A2 of connector DM27122AB, then do these steps:
- 1) Do a check of the program pin connections of connector DM27122AB (the connector for the ACE-L2) (WDM 27-02-36).
- 2) If the program pin connections do not agree with the wiring diagram, then do these steps:
- a) Repair the wiring.

EFFECTIVITY
ARO ALL

27-02 TASK 877

D633W103-ARO

Page 298.151
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) Re-install the ACE-L2, M27122.
- c) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- d) Do this ground test on the MAT:
- e) 27-Primary Flight Controls, System Test, Transmitter Reset.
- f) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

878. ACE-C Inoperative - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13010.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) Do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
NOTE: After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (3) Do this check for 28 VDC at the ACE-C:

EFFECTIVITY
ARO ALL

27-02 TASKS 877-878

D633W103-ARO

Page 298.152
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the ACE-C, M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (b) Remove DO-NOT-CLOSE tag and close this circuit breaker on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR

- (c) Do a check for 28 VDC from pin A1 to pin A2 of connector DM27321AB on the ACE-C at the E2-5 shelf (WDM 27-02-33).
- (d) If there is not 28 VDC at pin A1 of connector DM27321AB, then do these steps:
 - 1) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27321AB (for the ACE-C) and connector DM24301AD (for the PSA-C) (WDM 27-02-33):

DM27321AB	DM24301AD
pin A1	pin 5

- 3) Do a continuity check between pin A2 of connector DM27321AB (for the ACE-C) and structure ground (WDM 27-02-33):
- 4) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - d) Do this ground test on the MAT:
 - e) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - f) If the maintenance message does not show on the MAT, then you corrected the fault.
- 5) If you do not find a problem with the wiring, then continue.
- 6) Install a new PSA-C, M24301, at E2-6 shelf. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- 7) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.
- (e) If there is 28 VDC at pin A1 of connector DM27321AB, then continue.
- (4) Do this check of the wiring:
 - (a) Make sure the program pins of connector DM27321AB (for the ACE-C) agree with the wiring diagram (WDM 27-02-36).
 - (b) If program pins do not agree with the wiring diagram, then do these steps:
 - 1) Change the wiring to agree with the wiring diagram.

EFFECTIVITY
ARO ALL

27-02 TASK 878

D633W103-ARO

Page 298.153
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

879. ACE-R Inoperative - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13011.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) Do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (3) Do this check for 28 VDC at the ACE-R:
 - (a) Remove the ACE-R, M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the center power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR

EFFECTIVITY
ARO ALL

27-02 TASKS 878-879

D633W103-ARO

Page 298.154
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Do a check for 28 VDC from pin A1 to pin A2 of connector DM27221AB on the ACE-R at the E5-2 shelf (WDM 27-02-34).
- (d) If there is not 28 VDC at pin A1 of connector DM27221AB, then do these steps:
- 1) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27221AB (for the ACE-R) and connector DM24201AD (for the PSA-R) (WDM 27-02-34):
- | | |
|------------------|------------------|
| DM27221AB | DM24201AD |
| pin A1 | pin 5 |
- 3) Do a continuity check between pin A2 of connector DM27221AB (for the ACE-R) and structure ground (WDM 27-02-34):
 - 4) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - d) Do this ground test on the MAT:
 - e) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - f) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 5) If you do not find a problem with the wiring, then continue.
 - 6) Install a new PSA-R, M24201, at E2-6 shelf. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - 7) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.
- (e) If there is 28 VDC at pin A1 of connector DM27221AB, then continue.
- (4) Do this check of the wiring:
- (a) Make sure the program pins of connector DM27221AB (for the ACE-R) agree with the wiring diagram (WDM 27-02-36).
 - (b) If program pins do not agree with the wiring diagram, then do these steps:
 - 1) Change the wiring to agree with the wiring diagram.
 - 2) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.

EFFECTIVITY
ARO ALL

27-02 TASK 879

D633W103-ARO

Page 298.155
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

880. Actuator Control Electronics (Left 1) Internal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13000.

B. Initial Evaluation

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT for these maintenance messages: 27-13000, 27-13001, 27-13002, 27-13003.
- (a) If all the messages given in the list above are displayed, then do these steps:
- 1) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (L1) Replacement.
 - a) If maintenance message 27-13000 does not reset, replace the left 1 actuator control electronics (ACE-L1), M27121.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (L2) Replacement.
 - a) If maintenance message 27-13001 does not reset, replace the left 2 actuator control electronics (ACE-L2), M27122.
 - 3) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (C) Replacement.
 - a) If maintenance message 27-13002 does not reset, replace the center actuator control electronics (ACE-C), M27321.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (R) Replacement.
 - a) If maintenance message 27-13003 does not reset, replace the right actuator control electronics (ACE-R), M27221.
- (b) If all the messages given in the list above are not displayed, then do the fault isolation steps below.
- (2) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT for one or more of these maintenance messages: 27-13041, 27-13042, 27-13043, 27-13044.
- (a) If you find one or more of the maintenance messages given in the list above, then do these steps:
- 1) Find the message in the FIM Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - 3) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (L1) Replacement.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.
- (b) If you do not find one of the maintenance messages given in the list above, then continue.
- (3) Find the maintenance message on the MAT. Select MAINTENANCE MESSAGE DATA.
- (4) If one or more EICAS messages show as a "Correlated Flight Deck Effect", then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS 879-880

D633W103-ARO

Page 298.156
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (5) If no EICAS messages show as a "Correlated Flight Deck Effect", then do these steps:
 - (a) Operate the rudder trim in the NOSE L direction for a minimum of 5 seconds.
 - (b) Operate the rudder trim in the NOSE R direction for a minimum of 5 seconds.
 - (c) If the maintenance message shows ACTIVE or LATCHED, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message shows NOT ACTIVE (or if the message does not show), then no repair is necessary.

C. Fault Isolation Procedure

- (1) Exchange the ACE-L1, M27121 with ACE-C, M27321. Do this task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Exchange the left power supply assembly (PSA-L), M24101 and the right PSA-R, M24201. Do these tasks:
 - To remove the left PSA-L and the right PSA-R: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - To install the left PSA-L into the right PSA-R position and install the right PSA-R into the left position: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (3) Dispatch the airplane and track for any of the following faults happen:
 - (a) If the fault moves to the center Actuator Control Electronics (ACE-C) position, do these tasks to replace the left ACE-L1:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (b) If the fault moves to the PSA-R position, do these tasks to replace the PSA-L:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - (c) If the fault stays in the ACE-L1 position, do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Confidence.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message still shows on the ground test display, then continue.
- (4) Remove the ACE-L1, M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- (5) Do the wiring check from the ACE-L1 shelf back connector for the continuity between pin-to-pin shorts, pin to shield shorts (WDM 27-02-31):

	ACE - Connector J1A		DM27121AA
AILERON BYP L	pin A13	AIL PCU BYP RTN	pin A13
AILERON BLK L	pin A15	AIL PCU BLK RTN	pin A15
FLAPERON BYP L	pin F2	FLPRN PCU BYP RTN	pin F2

EFFECTIVITY
ARO ALL

27-02 TASK 880

D633W103-ARO

Page 298.157
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

	ACE - Connector J1B		DM27121AB
ACE 28VDC	pin A1	POWER SUPPLY	pin A1
ACE RET 1	pin A2	POWER SUPPLY	pin A2
RUD/SPLR RET	pin A5	RUD GND	pin A5
AIL RET	pin A7	AIL GND	pin A7
ASPBK RET	pin A9	AUTO SPDBRK GND	pin A9

	ACE - Connector J1C		DM27121AC
STAB TRIM ARM & POSITION NU RET	pin A2	TRIM NOSE UP ARM RTN	pin A2
STAB TRIM ARM & POSITION SHUT OFF RET / RATE RETURN	pin A4	TRIM RATE RTN	pin A4
ELEVATOR BYP L	pin A13	ELEV PCU BYP RTN	pin A13
ELEVATOR BLK1 L	pin A15	ELEV PCU BLK RTN	pin A15
STAB TRIM ARM & POSITION ND RET	pin B4	TRIM NOSE DOWN ARM RTN	pin B4
ELEVATOR BLK2 L	pin B13	ELEV PCU BLK RTN	pin B13
ELEVATOR PRESS RED L	pin B15	ELEV PCU PRESS RDCR RTN	pin B15
RUDDER BYP L	pin F2	RUD PCU BYP RTN	pin F2
AUTO-SPEED BRAKE XTND LO	pin F5	AUTO SPDBRK CTRL RTN	pin F5
RUDDER PRESS RED L	pin G4	RUD PCU PRESS RDCR RTN	pin G4

- (a) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ACE-L1. Do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (b) Do this task: Actuator Control Electronics (ACE) Monitor Test, AMM TASK 27-02-02-400-801
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

———— **END OF TASK** ————

881. Actuator Control Electronics (Left 2) Internal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13001.

B. Initial Evaluation

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT for these maintenance messages: 27-13000, 27-13001, 27-13002, 27-13003.
 - (a) If all the messages given in the list above are displayed, then do these steps:

EFFECTIVITY
ARO ALL

27-02 TASKS 880-881

D633W103-ARO

Page 298.158
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (L1) Replacement.
 - a) If maintenance message 27-13000 does not reset, replace the left 1 actuator control electronics (ACE-L1), M27121.
- 2) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (L2) Replacement.
 - a) If maintenance message 27-13001 does not reset, replace the left 2 actuator control electronics (ACE-L2), M27122.
- 3) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (C) Replacement.
 - a) If maintenance message 27-13002 does not reset, replace the center actuator control electronics (ACE-C), M27321.
- 4) Do this ground test on the MAT: 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (R) Replacement.
 - a) If maintenance message 27-13003 does not reset, replace the right actuator control electronics (ACE-R), M27221.
- (b) If all the messages given in the list above are not displayed, then do the fault isolation steps below.
- (2) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT for one or more of these maintenance messages: 27-13041, 27-13042, 27-13043, 27-13044.
 - (a) If you find one or more of the maintenance messages given in the list above, then do these steps:
 - 1) Find the message in the FIM Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - 3) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics (L2) Replacement.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (b) If you do not find one of the maintenance messages given in the list above, then do the Fault Isolation Procedure below.
- (3) Find the maintenance message on the MAT. Select MAINTENANCE MESSAGE DATA.
- (4) If one or more EICAS messages show as a "Correlated Flight Deck Effect", then do the Fault Isolation Procedure below.
- (5) If no EICAS messages show as a "Correlated Flight Deck Effect", then do these steps:
 - (a) Operate the rudder trim in the NOSE L direction for a minimum of 5 seconds.
 - (b) Operate the rudder trim in the NOSE R direction for a minimum of 5 seconds.
 - (c) If the maintenance message shows ACTIVE or LATCHED, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message shows NOT ACTIVE (or if the message does not show), then no repair is necessary.

EFFECTIVITY
ARO ALL

27-02 TASK 881

D633W103-ARO

Page 298.159
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Exchange the ACE-L2, M27122 with ACE-C, M27321. Do this task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Dispatch the airplane and track for any of the following faults happen.
 - (a) If the fault moves to the ACE-C position, do these tasks to replace the ACE-L2:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (b) If the fault stays in the ACE-L2 position, do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Confidence.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message still shows on the ground test display, then continue.
- (3) Remove the ACE-L2, M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- (4) Do the wiring check from the ACE-L2 shelf back connector for the continuity between pin-to-pin shorts, pin to shield shorts (WDM 27-02-32):

	ACE - Connector J1A		DM27122AA
AILERON BYP L	pin A13	AIL PCU BYP RTN	pin A13
AILERON BLK L	pin A15	AIL PCU BLK RTN	pin A15
FLAPERON BYP L	pin F2	FLPRN PCU BYP RTN	pin F2

	ACE - Connector J1B		DM27122AB
ACE 28VDC	pin A1	POWER SUPPLY	pin A1
ACE RET 1	pin A2	POWER SUPPLY	pin A2
RUD/SPLR RET	pin A5	RUD GND	pin A5
AIL RET	pin A7	AIL GND	pin A7
ELEV RET	pin B4	ELEV GND	pin B4
FLPRN RET	pin B6	FLPRN GND	pin B6
STAB RET	pin B8	PITCH TRIM GND	pin B8

	ACE - Connector J1C		DM27121AC
STAB TRIM ARM & POSITION NU RET	pin A2	TRIM NOSE UP ARM RTN	pin A2
STAB TRIM ARM & POSITION SHUT OFF RET / RATE RETURN	pin A4	TRIM RATE RTN	pin A4
ELEVATOR BYP L	pin A13	ELEV PCU BYP RTN	pin A13
ELEVATOR BLK1 L	pin A15	ELEV PCU BLK RTN	pin A15

EFFECTIVITY
ARO ALL

27-02 TASK 881

D633W103-ARO

Page 298.160
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

	ACE - Connector J1C		DM27121AC
STAB TRIM ARM & POSITION ND RET	pin B4	TRIM NOSE DOWN ARM RTN	pin B4
ELEVATOR BLK2 L	pin B13	ELEV PCU BLK RTN	pin B13
ELEVATOR PRESS RED L	pin B15	ELEV PCU PRESS RDCR RTN	pin B15
RUDDER SPLR B L	pin F4	SPLR 4 RTN	pin F4
RUDDER DMP/SPLR C L	pin H3	SPLR 11 RTN	pin H3

- (a) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ACE-L2. Do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (b) Do this task: Actuator Control Electronics (ACE) Monitor Test, AMM TASK 27-02-02-400-801
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

882. Actuator Control Electronics (Left 1) Monitor Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13004.

B. Fault Isolation Procedure

- (1) Exchange the ACE that failed for M27121 with ACE that passed. These are the tasks:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 2) If the maintenance message does not show on the ground test display, swap the ACEs back to their original positions and rerun the test to ensure the fault is no longer present.
 - 3) If the maintenance message still shows on the ground test display and the failure has followed the original suspect ACE to the new location, reject the failed ACE.
 - 4) If the maintenance message still shows on the ground test display and the failure has remained in the original location, swap the ACEs back to their original positions and continue troubleshooting.
 - a) Do this ground test on the MAT:
 - b) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - c) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 881-882

D633W103-ARO

Page 298.161
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- d) If the maintenance message still shows on the ground test display, perform FIM tasks associated with any chapter 27 maintenance messages in existing leg faults.
- e) Do this ground test on the MAT:
- f) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
- g) If the maintenance message does not show on the ground test display, you corrected the fault.
- h) If the maintenance message still shows on the ground test display perform FIM tasks associated with any chapter 27 maintenance messages in existing leg -0, leg -1 and leg -2 of fault history.
- i) Do this ground test on the MAT:
- j) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
- k) If the maintenance message does not show on the ground test display, you corrected the fault.
- l) If the maintenance message still shows on the ground test display, use the Input Monitoring Procedure to read the AMT test result refer to Table I - How to Read ACE Monitor Test Results Using Maintenance Access Terminal (MAT) Input Monitoring.

EFFECTIVITY
ARO ALL

27-02 TASK 882

D633W103-ARO

Page 298.162
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table I - How to Read ACE Monitor Test Results Using Maintenance Access Terminal (MAT) Input Monitoring

From the ON BOARD MAINTENANCE Menu:

- (1) Select OTHER FUNCTIONS from the CMCS main menu.
- (2) Select the INPUT MONITORING function.
- (3) Select ARINC 629 FULL WORDSTRING from the input monitoring main menu.
- (4) Select CONTINUE.
- (5) Put the cursor in a direct entry field.
- (6) Use the keyboard to type the following signal specification into the direct entry field.

NOTE: It is not necessary to type initial zeros.

Enter: [A]/629/[B]/504/[C]/[D]

Where: [A] = AIMS Cabinet, Use L or R (Use opposite of active CMC) *Note 1 [B] = FC BUS

Use FC L for ACE L1 or L2 failures (L PFC data)

Use FC C for ACE C failures (C PFC data)

Use FC R for ACE R failures (R PFC data)

[C] = CID (try each CID in turn until updated data is seen)

Use 0, 3, 6 for ACE L1 or L2 failures (L PFC data)

Use 1, 4, 7 for ACE C failures (C PFC data)

Use 2, 5, 8 for ACE R failures (R PFC data)

[D] = Use 9-9 for ACE L1 failures (L1 ACE NVM WORD)

Use 11-11 for ACE L2 failures (L2 ACE NVM WORD)

Use 13-13 for ACE C failures (C ACE NVM WORD)

Use 15-15 for ACE R failures (R ACE NVM WORD) Example: L/629/FC R/504/2/15-15 to read ACE R AMT failure results, via L AIMS, and trying the first applicable CID.

- (7) Select either IOM.

(8) Select RUN. Verify that "SAMPLING" is displayed confirming that updated data is being displayed. If not, go back and try the next applicable CID in entry field [C]. Only one of the three applicable CIDs will give updated data.

(9) When fresh data is being displayed, record or print. 0000 (Hex) is expected if AMT passes. Anything other than 0000 (Hex) represents a fault code and should be recorded for shop use or reporting to Boeing. Relevant bits for AMT are as follows: 14 = Bus Selection Test, 13 = CRC/Data Validation Test, 12 = Non-629 Monitors Test, B11= Power Supply/SOV Test.

* NOTE 1: Go to ONBOARD MAINTENANCE, select OTHER FUNCTIONS. Go to CMC switch control, make either Left or Right CMC the active one and use the other to begin the input monitoring word string – i.e.: Left CMC is active [A] = R.

- m) If the AMT passes, you corrected the fault.
- n) If the AMT fails, perform additional troubleshooting actions refer to table II - AMT ACE Interfaces and Applicable Ground Tests.

Table II - AMT ACE Interfaces and Applicable Ground Tests

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y	Y	Y	ACE	Inspect ACE tray connector & pins ACE Replacement Test

EFFECTIVITY
ARO ALL

27-02 TASK 882

D633W103-ARO

Page 298.163
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y	Y	Y	PFC	Cycle PFC power PFC Self Test
Y	Y	Y	Y	Y	Y	Y	Y	28V Power and Grounds	Check 28V (ACE tray pin B-A1) Check grounds (B-A2, B-A5, B-A7, B-A9, B-B4, B-B6, B-B8) to aircraft structure per Standard Wiring Practices Manual (SWPM) 20-20-00, TABLE XXIX. When doing this, depower airplane, or pull all breakers on the PSA (L1/C/R ACE) or depower the L 28V DC bus (L2 ACE)

EFFECTIVITY
ARO ALL

27-02 TASK 882

D633W103-ARO

Page 298.164
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y		Y	ARINC 629 Transmit/Receive (Primary Bus, coupler, stub cable)	Test the ACE Tx/Rx stub cable wiring from the shelf connector to the coupler, to verify a.Normal expected conductivity of signal and shield b.No shorts between signal conductors or from each signal conductor to shield Replace the ACE Tx/Rx coupler per AMM 23-91- 01/40; see FLIGHT CONTROL BUS COUPLERS Table

EFFECTIVITY
ARO ALL

27-02 TASK 882

D633W103-ARO

Page 298.165
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y			ARINC 629 Receive Only (Sec. & Ter. buses, couplers, stub cables)	Test the 2x ACE Rx only stub cable wiring from the shelf connector to the coupler, to verify c.Normal expected conductivity of signal and shield d.No shorts between signal conductors or from each signal conductor to shield Replace the 2x ACE Rx couplers per AMM 23-91- 01/40; see FLIGHT CONTROL BUS COUPLERS Table
Y		Y	Y		Y	Y	Y	Rud Comand and Feedbacks	Rudder Position Test Rudder Actuation Confidence Test
Y		Y	Y				Y	Rud SOVs (solenoids)	Rudder Position Test Rudder Actuation Confidence Test
Y	Y	Y	Y		Y	Y	Y	Ail Command and Feedbacks	Left or Right Aileron Position Test Left or Right Aileron Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)

EFFECTIVITY
ARO ALL

27-02 TASK 882

D633W103-ARO

Page 298.166
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y				Y	Ail SOVs (solenoids)	Left or Right Aileron Position Test Left or Right Aileron Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y		Y	Y	Y	Flprn Command and Feedbacks	Left or Right Flaperon Position Test Left or Right Flaperon Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y				Y	Flprn SOVs (solenoids)	Left or Right Flaperon Position Test Left or Right Flaperon Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y		Y	Y	Y	Elev Command and Feedbacks	Left or Right Elevator Position Test Left or Right Elevator Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)

EFFECTIVITY
ARO ALL

27-02 TASK 882

D633W103-ARO

Page 298.167
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y				Y	Elev SOVs (solenoids)	Left or Right Elevator Position Test Left or Right Elevator Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y		Y	Y	Y	Spoilers (Electrical) Command and Feedbacks	Spoiler 1,7,8,14 System Test Spoiler 2,13 System Test Spoiler 3,6,9,12 System Test Spoiler 5,10 System Test (Select depending on which ACE is failing AMT)
	Y	Y				Y	Y	Column Feel	Elevator Feel Test
Y			Y			Y		Rudder Trim	Rudder Trim System Test
Y	Y	Y	Y			Y		Speedbrake Lever Position Xdcrs	Speedbrake System
Y	Y	Y	Y			Y		Column Position Xdcrs	Column Position Transducer Test
Y	Y	Y	Y			Y		Wheel Position Xdcrs	Wheel Position Transducer Test
Y	Y	Y	Y			Y		Pedal Position Xdcrs	Pedal Position Transducer Test
Y	Y	Y	Y			Y	Y	FSEU flaps discretes	FSEU Interface to ACE Test
Y	Y	Y	Y	Y	Y	Y	Y	Direct Mode Switch	PFC Disconnect Switch Test
Y		Y	Y		P	P	P	Stabilizer Position Xdcrs	Stabilizer System Test

EFFECTIVITY
ARO ALL

27-02 TASK 882

D633W103-ARO

Page 298.168
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
	Y				P	P	P	Spoilers (Mechanical 4,11) Command and Feedbacks	Spoiler 4,11 System Test
Y	Y	Y	Y		P	P	P	Column Force Xdcrs	Column Force Transducer Test
	Y	Y			P	P	P	Wheel Force Xdcrs	Wheel Force Transducer Test
Y	Y		Y		P	P	P	Flight Data Rec (FDR) Col, Whl, Ped Xdcrs (all 777's from C/L 412)	No applicable test. Exercise Wheel, Column and Pedal and monitor FDR transducer values on Flight Controls Maint Page #1 for correct behavior.

- o) If the input monitoring result indicates a Non-629 Monitors sub-test failure, do this task: ACE Monitor Test - using A629 bus analyzer, COM-12058 (AMM TASK 27-02-02-400-804) to create a data file for root cause analysis. The Flight Controls - Left bus data should be recorded.
- p) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

883. Actuator Control Electronics (Left 2) Monitor Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13005.

B. Fault Isolation Procedure

- (1) Exchange the ACE that failed for M27122 with ACE that passed. These are the tasks:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 2) If the maintenance message does not show on the ground test display, swap the ACEs back to their original positions and rerun the test to ensure the fault is no longer present.

EFFECTIVITY
ARO ALL

27-02 TASKS 882-883

D633W103-ARO

Page 298.169
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) If the maintenance message still shows on the ground test display and the failure has followed the original suspect ACE to the new location, reject the failed ACE.
- 4) If the maintenance message still shows on the ground test display and the failure has remained in the original location, swap the ACEs back to their original positions and continue troubleshooting.
 - a) Do this ground test on the MAT:
 - b) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - d) If the maintenance message still shows on the ground test display, perform FIM tasks associated with any chapter 27 maintenance messages in existing leg faults.
 - e) Do this ground test on the MAT:
 - f) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - g) If the maintenance message does not show on the ground test display, you corrected the fault.
 - h) If the maintenance message still shows on the ground test display perform FIM tasks associated with any chapter 27 maintenance messages in existing leg -0, leg -1 and leg -2 of fault history.
 - i) Do this ground test on the MAT:
 - j) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - k) If the maintenance message does not show on the ground test display, you corrected the fault.
 - l) If the maintenance message still shows on the ground test display, use the Input Monitoring Procedure to read the AMT test result refer to Table I - How to Read ACE Monitor Test Results Using Maintenance Access Terminal (MAT) Input Monitoring.

EFFECTIVITY
ARO ALL

27-02 TASK 883

D633W103-ARO

Page 298.170
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table I - How to Read ACE Monitor Test Results Using Maintenance Access Terminal (MAT) Input Monitoring

From the ON BOARD MAINTENANCE Menu:

- (1) Select OTHER FUNCTIONS from the CMCS main menu.
- (2) Select the INPUT MONITORING function.
- (3) Select ARINC 629 FULL WORDSTRING from the input monitoring main menu.
- (4) Select CONTINUE.
- (5) Put the cursor in a direct entry field.
- (6) Use the keyboard to type the following signal specification into the direct entry field.

NOTE: It is not necessary to type initial zeros.

Enter: [A]/629/[B]/504/[C]/[D]

Where: [A] = AIMS Cabinet, Use L or R (Use opposite of active CMC) *Note 1 [B] = FC BUS

Use FC L for ACE L1 or L2 failures (L PFC data)

Use FC C for ACE C failures (C PFC data)

Use FC R for ACE R failures (R PFC data)

[C] = CID (try each CID in turn until updated data is seen)

Use 0, 3, 6 for ACE L1 or L2 failures (L PFC data)

Use 1, 4, 7 for ACE C failures (C PFC data)

Use 2, 5, 8 for ACE R failures (R PFC data)

[D] = Use 9-9 for ACE L1 failures (L1 ACE NVM WORD)

Use 11-11 for ACE L2 failures (L2 ACE NVM WORD)

Use 13-13 for ACE C failures (C ACE NVM WORD)

Use 15-15 for ACE R failures (R ACE NVM WORD) Example: L/629/FC R/504/2/15-15 to read ACE R AMT failure results, via L AIMS, and trying the first applicable CID.

- (7) Select either IOM.

(8) Select RUN. Verify that "SAMPLING" is displayed confirming that updated data is being displayed. If not, go back and try the next applicable CID in entry field [C]. Only one of the three applicable CIDs will give updated data.

(9) When fresh data is being displayed, record or print. 0000 (Hex) is expected if AMT passes. Anything other than 0000 (Hex) represents a fault code and should be recorded for shop use or reporting to Boeing. Relevant bits for AMT are as follows: B14 = Bus Selection Test, B13 = CRC/Data Validation Test, B12 = Non-629 Monitors Test, B11 = Power Supply/SOV Test.

* NOTE 1: Go to ONBOARD MAINTENANCE, select OTHER FUNCTIONS. Go to CMC switch control, make either Left or Right CMC the active one and use the other to begin the input monitoring word string – i.e.: Left CMC is active [A] = R.

- m) If the AMT passes, you corrected the fault.
- n) If the AMT fails, perform additional troubleshooting actions refer to table II - AMT ACE Interfaces and Applicable Ground Tests.

Table II - AMT ACE Interfaces and Applicable Ground Tests

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y	Y	Y	ACE	Inspect ACE tray connector & pins ACE Replacement Test

EFFECTIVITY
ARO ALL

27-02 TASK 883

D633W103-ARO

Page 298.171
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y	Y	Y	PFC	Cycle PFC power PFC Self Test
Y	Y	Y	Y	Y	Y	Y	Y	28V Power and Grounds	Check 28V (ACE tray pin B-A1) Check grounds (B-A2, B-A5, B-A7, B-A9, B-B4, B-B6, B-B8) to aircraft structure per Standard Wiring Practices Manual (SWPM) 20-20-00, TABLE XXIX. When doing this, depower airplane, or pull all breakers on the PSA (L1/C/R ACE) or depower the L 28V DC bus (L2 ACE)

EFFECTIVITY
ARO ALL

27-02 TASK 883

D633W103-ARO

Page 298.172
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y		Y	ARINC 629 Transmit/Receive (Primary Bus, coupler, stub cable)	Test the ACE Tx/Rx stub cable wiring from the shelf connector to the coupler, to verify a.Normal expected conductivity of signal and shield b.No shorts between signal conductors or from each signal conductor to shield Replace the ACE Tx/Rx coupler per AMM 23-91- 01/40; see FLIGHT CONTROL BUS COUPLERS Table

EFFECTIVITY
ARO ALL

27-02 TASK 883

D633W103-ARO

Page 298.173
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y			ARINC 629 Receive Only (Sec. & Ter. buses, couplers, stub cables)	Test the 2x ACE Rx only stub cable wiring from the shelf connector to the coupler, to verify c.Normal expected conductivity of signal and shield d.No shorts between signal conductors or from each signal conductor to shield Replace the 2x ACE Rx couplers per AMM 23-91- 01/40; see FLIGHT CONTROL BUS COUPLERS Table
Y		Y	Y		Y	Y	Y	Rud Comand and Feedbacks	Rudder Position Test Rudder Actuation Confidence Test
Y		Y	Y				Y	Rud SOVs (solenoids)	Rudder Position Test Rudder Actuation Confidence Test
Y	Y	Y	Y		Y	Y	Y	Ail Command and Feedbacks	Left or Right Aileron Position Test Left or Right Aileron Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)

EFFECTIVITY
ARO ALL

27-02 TASK 883

D633W103-ARO

Page 298.174
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y				Y	Ail SOVs (solenoids)	Left or Right Aileron Position Test Left or Right Aileron Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y		Y	Y	Y	Flprn Command and Feedbacks	Left or Right Flaperon Position Test Left or Right Flaperon Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y				Y	Flprn SOVs (solenoids)	Left or Right Flaperon Position Test Left or Right Flaperon Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y		Y	Y	Y	Elev Command and Feedbacks	Left or Right Elevator Position Test Left or Right Elevator Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)

EFFECTIVITY
ARO ALL

27-02 TASK 883

D633W103-ARO

Page 298.175
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y				Y	Elev SOVs (solenoids)	Left or Right Elevator Position Test Left or Right Elevator Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y		Y	Y	Y	Spoilers (Electrical) Command and Feedbacks	Spoiler 1,7,8,14 System Test Spoiler 2,13 System Test Spoiler 3,6,9,12 System Test Spoiler 5,10 System Test (Select depending on which ACE is failing AMT)
	Y	Y				Y	Y	Column Feel	Elevator Feel Test
Y			Y			Y		Rudder Trim	Rudder Trim System Test
Y	Y	Y	Y			Y		Speedbrake Lever Position Xdcrs	Speedbrake System
Y	Y	Y	Y			Y		Column Position Xdcrs	Column Position Transducer Test
Y	Y	Y	Y			Y		Wheel Position Xdcrs	Wheel Position Transducer Test
Y	Y	Y	Y			Y		Pedal Position Xdcrs	Pedal Position Transducer Test
Y	Y	Y	Y			Y	Y	FSEU flaps discretes	FSEU Interface to ACE Test
Y	Y	Y	Y	Y	Y	Y	Y	Direct Mode Switch	PFC Disconnect Switch Test
Y		Y	Y		P	P	P	Stabilizer Position Xdcrs	Stabilizer System Test

EFFECTIVITY
ARO ALL

27-02 TASK 883

D633W103-ARO

Page 298.176
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
	Y				P	P	P	Spoilers (Mechanical 4,11) Command and Feedbacks	Spoiler 4,11 System Test
Y	Y	Y	Y		P	P	P	Column Force Xdcrs	Column Force Transducer Test
	Y	Y			P	P	P	Wheel Force Xdcrs	Wheel Force Transducer Test
Y	Y		Y		P	P	P	Flight Data Rec (FDR) Col, Whl, Ped Xdcrs (all 777's from C/L 412)	No applicable test. Exercise Wheel, Column and Pedal and monitor FDR transducer values on Flight Controls Maint Page #1 for correct behavior.

- o) If the input monitoring result indicates a Non-629 Monitors sub-test failure. Do this task ACE Monitor Test using A629 bus analyzer, COM-12058 (AMM TASK 27-02-02-400-804) to create a data file for root cause analysis. The Flight Controls - Left bus data should be recorded.
- p) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

884. Actuator Control Electronics (Center) Monitor Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13006.

B. Fault Isolation Procedure

- (1) Exchange the ACE that failed for M27321 with ACE that passed. These are the tasks:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 2) If the maintenance message does not show on the ground test display, swap the ACEs back to their original positions and rerun the test to ensure the fault is no longer present.

EFFECTIVITY
ARO ALL

27-02 TASKS 883-884

D633W103-ARO

Page 298.177
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) If the maintenance message still shows on the ground test display and the failure has followed the original suspect ACE to the new location, reject the failed ACE.
- 4) If the maintenance message still shows on the ground test display and the failure has remained in the original location, swap the ACEs back to their original positions and continue troubleshooting.
 - a) Do this ground test on the MAT:
 - b) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - d) If the maintenance message still shows on the ground test display, perform FIM tasks associated with any chapter 27 maintenance messages in existing leg faults.
 - e) Do this ground test on the MAT:
 - f) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - g) If the maintenance message does not show on the ground test display, you corrected the fault.
 - h) If the maintenance message still shows on the ground test display perform FIM tasks associated with any chapter 27 maintenance messages in existing leg -0, leg -1 and leg -2 of fault history.
 - i) Do this ground test on the MAT:
 - j) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - k) If the maintenance message does not show on the ground test display, you corrected the fault.
 - l) If the maintenance message still shows on the ground test display, use the Input Monitoring Procedure to read the AMT test result refer to Table I - How to Read ACE Monitor Test Results Using Maintenance Access Terminal (MAT) Input Monitoring.

EFFECTIVITY
ARO ALL

27-02 TASK 884

D633W103-ARO

Page 298.178
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table I - How to Read ACE Monitor Test Results Using Maintenance Access Terminal (MAT) Input Monitoring

From the ON BOARD MAINTENANCE Menu:

- (1) Select OTHER FUNCTIONS from the CMCS main menu.
- (2) Select the INPUT MONITORING function.
- (3) Select ARINC 629 FULL WORDSTRING from the input monitoring main menu.
- (4) Select CONTINUE.
- (5) Put the cursor in a direct entry field.
- (6) Use the keyboard to type the following signal specification into the direct entry field.

NOTE: It is not necessary to type initial zeros.

Enter: [A]/629/[B]/504/[C]/[D]

Where: [A] = AIMS Cabinet, Use L or R (Use opposite of active CMC) *Note 1 [B] = FC BUS

Use FC L for ACE L1 or L2 failures (L PFC data)

Use FC C for ACE C failures (C PFC data)

Use FC R for ACE R failures (R PFC data)

[C] = CID (try each CID in turn until updated data is seen)

Use 0, 3, 6 for ACE L1 or L2 failures (L PFC data)

Use 1, 4, 7 for ACE C failures (C PFC data)

Use 2, 5, 8 for ACE R failures (R PFC data)

[D] = Use 9-9 for ACE L1 failures (L1 ACE NVM WORD)

Use 11-11 for ACE L2 failures (L2 ACE NVM WORD)

Use 13-13 for ACE C failures (C ACE NVM WORD)

Use 15-15 for ACE R failures (R ACE NVM WORD) Example: L/629/FC R/504/2/15-15 to read ACE R AMT failure results, via L AIMS, and trying the first applicable CID.

- (7) Select either IOM.

(8) Select RUN. Verify that "SAMPLING" is displayed confirming that updated data is being displayed. If not, go back and try the next applicable CID in entry field [C]. Only one of the three applicable CIDs will give updated data.

(9) When fresh data is being displayed, record or print. 0000 (Hex) is expected if AMT passes. Anything other than 0000 (Hex) represents a fault code and should be recorded for shop use or reporting to Boeing. Relevant bits for AMT are as follows: 14 = Bus Selection Test, 13 = CRC/Data Validation Test, 12 = Non-629 Monitors Test, B11= Power Supply/SOV Test.

* NOTE 1: Go to ONBOARD MAINTENANCE, select OTHER FUNCTIONS. Go to CMC switch control, make either Left or Right CMC the active one and use the other to begin the input monitoring word string – i.e.: Left CMC is active [A] = R.

- m) If the AMT passes, you corrected the fault.
- n) If the AMT fails, perform additional troubleshooting actions refer to table II - AMT ACE Interfaces and Applicable Ground Tests.

Table II - AMT ACE Interfaces and Applicable Ground Tests

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y	Y	Y	ACE	Inspect ACE tray connector & pins ACE Replacement Test

EFFECTIVITY
ARO ALL

27-02 TASK 884

D633W103-ARO

Page 298.179
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y	Y	Y	PFC	Cycle PFC power PFC Self Test
Y	Y	Y	Y	Y	Y	Y	Y	28V Power and Grounds	Check 28V (ACE tray pin B-A1) Check grounds (B-A2, B-A5, B-A7, B-A9, B-B4, B-B6, B-B8) to aircraft structure per Standard Wiring Practices Manual (SWPM) 20-20-00, TABLE XXIX. When doing this, depower airplane, or pull all breakers on the PSA (L1/C/R ACE) or depower the L 28V DC bus (L2 ACE)

EFFECTIVITY
ARO ALL

27-02 TASK 884

D633W103-ARO

Page 298.180
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y		Y	ARINC 629 Transmit/Receive (Primary Bus, coupler, stub cable)	Test the ACE Tx/Rx stub cable wiring from the shelf connector to the coupler, to verify a.Normal expected conductivity of signal and shield b.No shorts between signal conductors or from each signal conductor to shield Replace the ACE Tx/Rx coupler per AMM 23-91- 01/40; see FLIGHT CONTROL BUS COUPLERS Table

EFFECTIVITY
ARO ALL

27-02 TASK 884

D633W103-ARO

Page 298.181
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y			ARINC 629 Receive Only (Sec. & Ter. buses, couplers, stub cables)	Test the 2x ACE Rx only stub cable wiring from the shelf connector to the coupler, to verify c.Normal expected conductivity of signal and shield d.No shorts between signal conductors or from each signal conductor to shield Replace the 2x ACE Rx couplers per AMM 23-91- 01/40; see FLIGHT CONTROL BUS COUPLERS Table
Y		Y	Y		Y	Y	Y	Rud Comand and Feedbacks	Rudder Position Test Rudder Actuation Confidence Test
Y		Y	Y				Y	Rud SOVs (solenoids)	Rudder Position Test Rudder Actuation Confidence Test
Y	Y	Y	Y		Y	Y	Y	Ail Command and Feedbacks	Left or Right Aileron Position Test Left or Right Aileron Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)

EFFECTIVITY
ARO ALL

27-02 TASK 884

D633W103-ARO

Page 298.182
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y				Y	Ail SOVs (solenoids)	Left or Right Aileron Position Test Left or Right Aileron Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y		Y	Y	Y	Flprn Command and Feedbacks	Left or Right Flaperon Position Test Left or Right Flaperon Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y				Y	Flprn SOVs (solenoids)	Left or Right Flaperon Position Test Left or Right Flaperon Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y		Y	Y	Y	Elev Command and Feedbacks	Left or Right Elevator Position Test Left or Right Elevator Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)

EFFECTIVITY
ARO ALL

27-02 TASK 884

D633W103-ARO

Page 298.183
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y				Y	Elev SOVs (solenoids)	Left or Right Elevator Position Test Left or Right Elevator Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y		Y	Y	Y	Spoilers (Electrical) Command and Feedbacks	Spoiler 1,7,8,14 System Test Spoiler 2,13 System Test Spoiler 3,6,9,12 System Test Spoiler 5,10 System Test (Select depending on which ACE is failing AMT)
	Y	Y				Y	Y	Column Feel	Elevator Feel Test
Y			Y			Y		Rudder Trim	Rudder Trim System Test
Y	Y	Y	Y			Y		Speedbrake Lever Position Xdcrs	Speedbrake System
Y	Y	Y	Y			Y		Column Position Xdcrs	Column Position Transducer Test
Y	Y	Y	Y			Y		Wheel Position Xdcrs	Wheel Position Transducer Test
Y	Y	Y	Y			Y		Pedal Position Xdcrs	Pedal Position Transducer Test
Y	Y	Y	Y			Y	Y	FSEU flaps discretes	FSEU Interface to ACE Test
Y	Y	Y	Y	Y	Y	Y	Y	Direct Mode Switch	PFC Disconnect Switch Test
Y		Y	Y		P	P	P	Stabilizer Position Xdcrs	Stabilizer System Test

EFFECTIVITY
ARO ALL

27-02 TASK 884

D633W103-ARO

Page 298.184
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
	Y				P	P	P	Spoilers (Mechanical 4,11) Command and Feedbacks	Spoiler 4,11 System Test
Y	Y	Y	Y		P	P	P	Column Force Xdcrs	Column Force Transducer Test
	Y	Y			P	P	P	Wheel Force Xdcrs	Wheel Force Transducer Test
Y	Y		Y		P	P	P	Flight Data Rec (FDR) Col, Whl, Ped Xdcrs (all 777's from C/L 412)	No applicable test. Exercise Wheel, Column and Pedal and monitor FDR transducer values on Flight Controls Maint Page #1 for correct behavior.

- o) If the input monitoring result indicates a Non-629 Monitors sub-test failure. Do this task ACE Monitor Test using A629 bus analyzer, COM-12058 (AMM TASK 27-02-02-400-804) to create a data file for root cause analysis. The Flight Controls - Center bus data should be recorded.
- p) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

885. Actuator Control Electronics (Right) Monitor Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13007.

B. Fault Isolation Procedure

- (1) Exchange the ACE that failed for M27221 with ACE that passed. These are the tasks:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 2) If the maintenance message does not show on the ground test display, swap the ACEs back to their original positions and rerun the test to ensure the fault is no longer present.

EFFECTIVITY
ARO ALL

27-02 TASKS 884-885

D633W103-ARO

Page 298.185
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) If the maintenance message still shows on the ground test display and the failure has followed the original suspect ACE to the new location, reject the failed ACE.
- 4) If the maintenance message still shows on the ground test display and the failure has remained in the original location, swap the ACEs back to their original positions and continue troubleshooting.
 - a) Do this ground test on the MAT:
 - b) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - d) If the maintenance message still shows on the ground test display, perform FIM tasks associated with any chapter 27 maintenance messages in existing leg faults.
 - e) Do this ground test on the MAT:
 - f) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - g) If the maintenance message does not show on the ground test display, you corrected the fault.
 - h) If the maintenance message still shows on the ground test display perform FIM tasks associated with any chapter 27 maintenance messages in existing leg -0, leg -1 and leg -2 of fault history.
 - i) Do this ground test on the MAT:
 - j) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - k) If the maintenance message does not show on the ground test display, you corrected the fault.
 - l) If the maintenance message still shows on the ground test display, use the Input Monitoring Procedure to read the AMT test result refer to Table I - How to Read ACE Monitor Test Results Using Maintenance Access Terminal (MAT) Input Monitoring.

EFFECTIVITY
ARO ALL

27-02 TASK 885

D633W103-ARO

Page 298.186
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table I - How to Read ACE Monitor Test Results Using Maintenance Access Terminal (MAT) Input Monitoring

From the ON BOARD MAINTENANCE Menu: (1) Select OTHER FUNCTIONS from the CMCS main menu. (2) Select the INPUT MONITORING function. (3) Select ARINC 629 FULL WORDSTRING from the input monitoring main menu. (4) Select CONTINUE. (5) Put the cursor in a direct entry field. (6) Use the keyboard to type the following signal specification into the direct entry field. NOTE: It is not necessary to type initial zeros. Enter: [A]/629/[B]/504/[C]/[D] Where: [A] = AIMS Cabinet, Use L or R (Use opposite of active CMC) *Note 1 [B] = FC BUS Use FC L for ACE L1 or L2 failures (L PFC data) Use FC C for ACE C failures (C PFC data) Use FC R for ACE R failures (R PFC data) [C] = CID (try each CID in turn until updated data is seen) Use 0, 3, 6 for ACE L1 or L2 failures (L PFC data) Use 1, 4, 7 for ACE C failures (C PFC data) Use 2, 5, 8 for ACE R failures (R PFC data) [D] = Use 9-9 for ACE L1 failures (L1 ACE NVM WORD) Use 11-11 for ACE L2 failures (L2 ACE NVM WORD) Use 13-13 for ACE C failures (C ACE NVM WORD) Use 15-15 for ACE R failures (R ACE NVM WORD) Example: L/629/FC R/504/2/15-15 to read ACE R AMT failure results, via L AIMS, and trying the first applicable CID. (7) Select either IOM. (8) Select RUN. Verify that "SAMPLING" is displayed confirming that updated data is being displayed. If not, go back and try the next applicable CID in entry field [C]. Only one of the three applicable CIDs will give updated data. (9) When fresh data is being displayed, record or print. 0000 (Hex) is expected if AMT passes. Anything other than 0000 (Hex) represents a fault code and should be recorded for shop use or reporting to Boeing. Relevant bits for AMT are as follows: 14 = Bus Selection Test, 13 = CRC/Data Validation Test, 12 = Non-629 Monitors Test, B11= Power Supply/SOV Test. * NOTE 1: Go to ONBOARD MAINTENANCE, select OTHER FUNCTIONS. Go to CMC switch control, make either Left or Right CMC the active one and use the other to begin the input monitoring word string – i.e.: Left CMC is active [A] = R.									
m) If the AMT passes, you corrected the fault.									
n) If the AMT fails, perform additional troubleshooting actions refer to table II - AMT ACE Interfaces and Applicable Ground Tests.									

Table II - AMT ACE Interfaces and Applicable Ground Tests

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y	Y	Y	ACE	Inspect ACE tray connector & pins ACE Replacement Test

EFFECTIVITY
ARO ALL

27-02 TASK 885

D633W103-ARO

Page 298.187
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y	Y	Y	PFC	Cycle PFC power PFC Self Test
Y	Y	Y	Y	Y	Y	Y	Y	28V Power and Grounds	Check 28V (ACE tray pin B-A1) Check grounds (B-A2, B-A5, B-A7, B-A9, B-B4, B-B6, B-B8) to aircraft structure per Standard Wiring Practices Manual (SWPM) 20-20-00, TABLE XXIX. When doing this, depower airplane, or pull all breakers on the PSA (L1/C/R ACE) or depower the L 28V DC bus (L2 ACE)

EFFECTIVITY
ARO ALL

27-02 TASK 885

D633W103-ARO

Page 298.188
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y		Y	ARINC 629 Transmit/Receive (Primary Bus, coupler, stub cable)	Test the ACE Tx/Rx stub cable wiring from the shelf connector to the coupler, to verify a.Normal expected conductivity of signal and shield b.No shorts between signal conductors or from each signal conductor to shield Replace the ACE Tx/Rx coupler per AMM 23-91- 01/40; see FLIGHT CONTROL BUS COUPLERS Table

EFFECTIVITY
ARO ALL

27-02 TASK 885

D633W103-ARO

Page 298.189
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y	Y	Y			ARINC 629 Receive Only (Sec. & Ter. buses, couplers, stub cables)	Test the 2x ACE Rx only stub cable wiring from the shelf connector to the coupler, to verify c.Normal expected conductivity of signal and shield d.No shorts between signal conductors or from each signal conductor to shield Replace the 2x ACE Rx couplers per AMM 23-91- 01/40; see FLIGHT CONTROL BUS COUPLERS Table
Y		Y	Y		Y	Y	Y	Rud Comand and Feedbacks	Rudder Position Test Rudder Actuation Confidence Test
Y		Y	Y				Y	Rud SOVs (solenoids)	Rudder Position Test Rudder Actuation Confidence Test
Y	Y	Y	Y		Y	Y	Y	Ail Command and Feedbacks	Left or Right Aileron Position Test Left or Right Aileron Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)

EFFECTIVITY
ARO ALL

27-02 TASK 885

D633W103-ARO

Page 298.190
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y				Y	Ail SOVs (solenoids)	Left or Right Aileron Position Test Left or Right Aileron Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y		Y	Y	Y	Flprn Command and Feedbacks	Left or Right Flaperon Position Test Left or Right Flaperon Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y				Y	Flprn SOVs (solenoids)	Left or Right Flaperon Position Test Left or Right Flaperon Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y		Y	Y	Y	Elev Command and Feedbacks	Left or Right Elevator Position Test Left or Right Elevator Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)

EFFECTIVITY
ARO ALL

27-02 TASK 885

D633W103-ARO

Page 298.191
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
Y	Y	Y	Y				Y	Elev SOVs (solenoids)	Left or Right Elevator Position Test Left or Right Elevator Actuation Confidence Test (Select Left or Right depending on which ACE is failing AMT)
Y	Y	Y	Y		Y	Y	Y	Spoilers (Electrical) Command and Feedbacks	Spoiler 1,7,8,14 System Test Spoiler 2,13 System Test Spoiler 3,6,9,12 System Test Spoiler 5,10 System Test (Select depending on which ACE is failing AMT)
	Y	Y				Y	Y	Column Feel	Elevator Feel Test
Y			Y			Y		Rudder Trim	Rudder Trim System Test
Y	Y	Y	Y			Y		Speedbrake Lever Position Xdcrs	Speedbrake System
Y	Y	Y	Y			Y		Column Position Xdcrs	Column Position Transducer Test
Y	Y	Y	Y			Y		Wheel Position Xdcrs	Wheel Position Transducer Test
Y	Y	Y	Y			Y		Pedal Position Xdcrs	Pedal Position Transducer Test
Y	Y	Y	Y			Y	Y	FSEU flaps discretes	FSEU Interface to ACE Test
Y	Y	Y	Y	Y	Y	Y	Y	Direct Mode Switch	PFC Disconnect Switch Test
Y		Y	Y		P	P	P	Stabilizer Position Xdcrs	Stabilizer System Test

EFFECTIVITY
ARO ALL

27-02 TASK 885

D633W103-ARO

Page 298.192
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table II - AMT ACE Interfaces and Applicable Ground Tests (Continued)

1. ACE that is failing AMT				2. AMT subtest that is failing				3. Possible interfaces or components that could be causing AMT failure	4. Applicable Ch 27 Primary Flight Controls System Ground Test(s) or other action
L1	L2	C	R	Bus Selection Test	CRC / Data Validation Test	Non- 629 Test	Power Supply / SOV Test		
	Y				P	P	P	Spoilers (Mechanical 4,11) Command and Feedbacks	Spoiler 4,11 System Test
Y	Y	Y	Y		P	P	P	Column Force Xdcrs	Column Force Transducer Test
	Y	Y			P	P	P	Wheel Force Xdcrs	Wheel Force Transducer Test
Y	Y		Y		P	P	P	Flight Data Rec (FDR) Col, Whl, Ped Xdcrs (all 777's from C/L 412)	No applicable test. Exercise Wheel, Column and Pedal and monitor FDR transducer values on Flight Controls Maint Page #1 for correct behavior.

- o) If the input monitoring result indicates a Non-629 Monitors sub-test failure. Do this task ACE Monitor Test using A629 bus analyzer, COM-12058 (AMM TASK 27-02-02-400-804) to create a data file for root cause analysis. The Flight Controls - Right bus data should be recorded.
- p) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-02 TASK 885

D633W103-ARO

Page 298.193
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

886. Primary Flight Computer (Left) Lane 2 Problems - Fault Isolation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLERS EVEN AFTER THE PFC HAS BEEN REPLACED.

NOTE: Avoid swapping PFCs if any of them contains a lane fault. The state machine inside the PFC that keeps track of lane faults can get confused and generate more lane faults or get into an unrecoverable state.

NOTE: If an intermittent lane fault continues to occur, the PFC will allow the lane fault to be cleared up to 10 times before it becomes permanently latched. This allows the operator 10 attempts to narrow down the cause of the lane fault. Once a lane fault is permanently latched, the PFC must be removed and sent to a repair shop to have the fault cleared. The following procedure is written to help the operator narrow down the cause of the lane fault and avoid getting to the point where the fault is permanently latched.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14001.

B. Description

- (1) The Left Primary Flight Computer (PFC-L) Lane 2 has an internal or interface fault.

C. Possible Causes

- (1) Primary Flight Computer (Left), M27106
- (2) Flight Controls ARINC 629 (L) Coupler in P112 (PFC-L), B27021
- (3) Flight Controls ARINC 629 (R) Coupler in P212 (PFC-L), B27022
- (4) Flight Controls ARINC 629 (C) Coupler in P312 (PFC-L), B27023
- (5) Wiring

D. Related Data

- (1) WDM 27-02-41
- (2) WDM 27-02-43
- (3) WDM 27-02-45
- (4) SWPM 20-11-11

E. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do this Ground Test on the MAT: Primary Flight Computer (L) Lane Reset, AMM TASK 27-02-01-740-801

NOTE: If the PFC Lane Reset was not successful, do the lane reset a second time.

- (a) If the second PFC Lane Reset was successful, swap the Left Primary Flight Computer (PFC-L), M27106 with the Right Primary Flight Computer (PFC-R), M27206. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

- 1) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.

EFFECTIVITY
ARO ALL

27-02 TASK 886

D633W103-ARO

Page 298.194
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message "27-14013 Primary Flight Computer (Right) lane 2 has an internal or interface fault" now shows, replace the Primary Flight Computer that was originally installed in the PFC-L, M27106 position (now in the PFC-R position). These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
 - b) If the maintenance message "27-14001 Primary Flight Computer (Left) lane 2 has an internal or interface fault" still shows, do the Fault Isolation Procedure below.
- (b) If the second PFC Lane Reset was not successful, the fault is latched and cannot be cleared on the airplane, replace the Left Primary Flight Computer (PFC-L), M27106. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

F. Fault Isolation Procedure

- (1) Swap the ARINC Couplers that follow (WDM 27-02-41, WDM 27-02-43 and WDM 27-02-45):
 - Coupler B27021 (L FC BUS T/R) PFC-L LANE 2 with
 - Coupler B27073 (C FC BUS T/R) PFC-C LANE 1
 - Coupler B27022 (R FC BUS RCV) PFC-L LANE 2 with
 - Coupler B27082 (R FC BUS RCV) PFC-C LANE 2
 - Coupler B27023 (C FC BUS RCV) PFC-L LANE 2 with
 - Coupler B27091 (L FC BUS RCV) PFC-C LANE 3
- (2) These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: Swapping couplers can induce lane faults in the PFCs which would also need to be cleared by running the associated Primary Flight Computer (L, R, or C) Lane Reset Tests, AMM TASK 27-02-01-740-801.

- (a) Do the Repair Confirmation at the end of this task.
- (3) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.
 - (a) If the problem follows the coupler as shown in the table below, replace the applicable coupler. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

DB Coupler - Original Position	DB Coupler - Swapped Position	Original Maintenance Message	New Maintenance Message after swap	Replace Defective Coupler (Currently in Swapped Position)
P112 (PFC-L), B27021	P312 (PFC-C), B27073	27-14001	27-14006	P312 (PFC-C), B27073
P212 (PFC-L), B27022	P212 (PFC-C), B27082	27-14001	27-14007	P212 (PFC-C), B27082

EFFECTIVITY
ARO ALL

27-02 TASK 886

D633W103-ARO

Page 298.195
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

DB Coupler - Original Position	DB Coupler - Swapped Position	Original Maintenance Message	New Maintenance Message after swap	Replace Defective Coupler (Currently in Swapped Position)
P312 (PFC-L), B27023	P112 (PFC-C), B27091	27-14001	27-14008	P112 (PFC-C), B27091

- (b) If the maintenance message “27-14001 Primary Flight Computer (Left) lane 2 has an internal or interface fault” still shows in the PFC-L position, then continue.

- (4) Do these PFC-L to the 629 Coupler wire checks:

NOTE: Since it is not possible to determine which Stub Cable has the problem, it is recommended to examine ALL THREE Stub Cable Assemblies at the same time.

- (a) Open these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (b) Remove the PFC-L, M27106. This is the task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Disconnect connectors DB27021, DB27022 and DB27023 from these ARINC 629 Couplers:
- 1) B27021 Coupler in the P112 Panel (WDM 27-02-41)
 - 2) B27022 Coupler in the P212 Panel (WDM 27-02-43)
 - 3) B27023 Coupler in the P312 Panel (WDM 27-02-45)
- (d) Do a wiring check between these pins of connector DM27106AA OR DM27106AC at the PFC-L and the 629 Coupler connectors indicated in the tables that follow:

PFC-L	B27021
DM27106AA	COUPLER
	DB27021
pin 9T	pin 5
pin 9TR	pin 4
pin 10T	pin 2
pin 10TR	pin 1

PFC-L	B27022
DM27106AC	COUPLER
	DB27022
pin 9T	pin 5
pin 9TR	pin 4
pin 6T	pin 2
pin 6TR	pin 1

EFFECTIVITY
ARO ALL

27-02 TASK 886

D633W103-ARO

Page 298.196
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

PFC-L	B27023
DM27106AA	COUPLER
	DB27023
pin 2T	pin 5
pin 2TR	pin 4
pin 1T	pin 2
pin 1TR	pin 1

- (e) Examine the shelf connector pins for damage, fit and security.
- (f) Examine the coupler connector pins for damage, fit and security.
- (g) Do continuity checks and pin to shield insulation checks.
- (h) If you find a problem with the wiring, disconnect the stub cable at the shelf station and repeat the wiring check for each section to the stub cables to isolate which stub cable section is defective.
- (i) Repair or replace the defective stub cable(s) as necessary (SWPM 20-11-11).
- (j) Re-connect the coupler connectors DB27021, DB27022 and DB27023 to the 629 Couplers B27021, B27022 and B27023.
- (k) Install the couplers that you removed above. This is the task: ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.
- (l) Re-install the PFC-L, M27106. This is the task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- (m) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (n) Do the Repair Confirmation that follows.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: Primary Flight Computer (L) Lane Reset, AMM TASK 27-02-01-740-801
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
 - (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-02 TASK 886

D633W103-ARO

Page 298.197
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

887. Primary Flight Computer (Left) Lane 3 Problems - Fault Isolation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE, AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLERS EVEN AFTER THE PFC HAS BEEN REPLACED.

NOTE: Avoid swapping PFCs if any of them contains a lane fault. The state machine inside the PFC that keeps track of lane faults can get confused and generate more lane faults or get into an unrecoverable state.

NOTE: If an intermittent lane fault continues to occur, the PFC will allow the lane fault to be cleared up to 10 times before it becomes permanently latched. This allows the operator 10 attempts to narrow down the cause of the lane fault. Once a lane fault is permanently latched, the PFC must be removed and sent to a repair shop to have the fault cleared. The following procedure is written to help the operator narrow down the cause of the lane fault and avoid getting to the point where the fault is permanently latched.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14002.

B. Description

- (1) The Left Primary Flight Computer (PFC-L) Lane 3 has an internal or interface fault.

C. Possible Causes

- (1) Primary Flight Computer (Left), M27106
- (2) Flight Controls ARINC 629 (L) Coupler in P112 (PFC-L), B27031
- (3) Flight Controls ARINC 629 (R) Coupler in P212 (PFC-L), B27032
- (4) Flight Controls ARINC 629 (C) Coupler in P312 (PFC-L), B27033
- (5) Wiring

D. Related Data

- (1) WDM 27-02-41
- (2) WDM 27-02-43
- (3) WDM 27-02-45
- (4) SWPM 20-11-11

E. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do this Ground Test on the MAT: Primary Flight Computer (L) Lane Reset, AMM TASK 27-02-01-740-801

NOTE: If the PFC Lane Reset was not successful, do the lane reset a second time.

- (a) If the second PFC Lane Reset was successful, swap the Left Primary Flight Computer (PFC-L), M272106 with the Right Primary Flight Computer (PFC-R), M27206. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

- 1) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.

EFFECTIVITY
ARO ALL

27-02 TASK 887

D633W103-ARO

Page 298.198
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message "27-14014 Primary Flight Computer (Right) lane 3 has an internal or interface fault" now shows, replace the Primary Flight Computer that was originally installed in the PFC-L, M27106 position (now in the PFC-R position). These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
 - b) If the maintenance message "27-14002 Primary Flight Computer (Left) lane 3 has an internal or interface fault" still shows, do the Fault Isolation Procedure below.
- (b) If the second PFC Lane Reset was not successful, the fault is latched and cannot be cleared on the airplane, replace the Left Primary Flight Computer (PFC-L), M27106. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

F. Fault Isolation Procedure

- (1) Swap the ARINC Couplers that follow (WDM 27-02-41, WDM 27-02-43 and WDM 27-02-45):
 - Coupler B27031 (L FC BUS T/R) PFC-L LANE 3 with
 - Coupler B27073 (C FC BUS T/R) PFC-C LANE 1
 - Coupler B27032 (R FC BUS RCV) PFC-L LANE 3 with
 - Coupler B27082 (R FC BUS RCV) PFC-C LANE 2
 - Coupler B27033 (C FC BUS RCV) PFC-L LANE 3 with
 - Coupler B27091 (L FC BUS RCV) PFC-C LANE 3
- (2) These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: Swapping couplers can induce lane faults in the PFCs which would also need to be cleared by running the associated Primary Flight Computer (L, R, or C) Lane Reset Tests, AMM TASK 27-02-01-740-801.

- (a) Do the Repair Confirmation at the end of this task.
- (3) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.
 - (a) If the problem follows the coupler as shown in the table below, replace the applicable coupler. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

DB Coupler - Original Position	DB Coupler - Swapped Position	Original Maintenance Message	New Maintenance Message after swap	Replace Defective Coupler (Currently in Swapped Position)
P112 (PFC-L), B27031	P312 (PFC-C), B27073	27-14002	27-14006	P312 (PFC-C), B27073
P212 (PFC-L), B27032	P212 (PFC-C), B27082	27-14002	27-14007	P212 (PFC-C), B27082

EFFECTIVITY
ARO ALL

27-02 TASK 887

D633W103-ARO

Page 298.199
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

DB Coupler - Original Position	DB Coupler - Swapped Position	Original Maintenance Message	New Maintenance Message after swap	Replace Defective Coupler (Currently in Swapped Position)
P312 (PFC-L), B27033	P112 (PFC-C), B27091	27-14002	27-14008	P112 (PFC-C), B27091

- (b) If the maintenance message “27-14002 Primary Flight Computer (Left) lane 3 has an internal or interface fault” still shows in the PFC-L position, then continue.

- (4) Do these PFC-L to the 629 Coupler wire checks:

NOTE: Since it is not possible to determine which Stub Cable has the problem, it is recommended to examine ALL THREE Stub Cable Assemblies at the same time.

- (a) Open these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (b) Remove the PFC-L, M27106. This is the task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Disconnect connectors DB27031, DB27032 and DB27033 from these ARINC 629 Couplers:
- 1) B27031 Coupler in the P112 Panel (WDM 27-02-41)
 - 2) B27032 Coupler in the P212 Panel (WDM 27-02-43)
 - 3) B27033 Coupler in the P312 Panel (WDM 27-02-45)
- (d) Do a wiring check between these pins of connector DM27106AA OR DM27106AC at the PFC-L and the 629 Coupler connectors indicated in the tables that follow:

PFC-L	B27031
DM27106AA	COUPLER
	DB27031
pin 8T	pin 5
pin 8TR	pin 4
pin 7T	pin 2
pin 7TR	pin 1

PFC-L	B27032
DM27106AC	COUPLER
	DB27032
pin 8T	pin 5
pin 8TR	pin 4
pin 10T	pin 2
pin 10TR	pin 1

EFFECTIVITY
ARO ALL

27-02 TASK 887

D633W103-ARO

Page 298.200
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

PFC-L	B27033
DM27106AC	COUPLER
	DB27033
pin 2T	pin 5
pin 2TR	pin 4
pin 4T	pin 2
pin 4TR	pin 1

- (e) Examine the shelf connector pins for damage, fit and security.
- (f) Examine the coupler connector pins for damage, fit and security.
- (g) Do continuity checks and pin to shield insulation checks.
- (h) If you find a problem with the wiring, disconnect the stub cable at the shelf station and repeat the wiring check for each section to the stub cables to isolate which stub cable section is defective.
- (i) Repair or replace the defective stub cable(s) as necessary (SWPM 20-11-11).
- (j) Re-connect the coupler connectors DB27031, DB27032 and DB27033 to the 629 Couplers B27031, B27032 and B27033.
- (k) Install the couplers that you removed above. This is the task: ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.
- (l) Re-install the PFC-L, M27106. This is the task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- (m) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (n) Do the Repair Confirmation that follows.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: Primary Flight Computer (L) Lane Reset, AMM TASK 27-02-01-740-801
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
 - (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

888. ACE-L1, ACE PWR SUPP VALID 1 Circuit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17010.

EFFECTIVITY
ARO ALL

27-02 TASKS 887-888

D633W103-ARO

Page 298.201
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) After 1.5 minutes, look at the message on the MAT:
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
 - (a) For the IOM(M008) and IOM(M009) modules in the left AIMS cabinet, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Remove the ACE-L1, M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27121AB (for ACE-L1) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-04):

DM27121AB	J410-A	J420-A
pin J3	GROUND	GROUND
pin K2	pin C5	pin C5

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-02 TASK 888

D633W103-ARO

Page 298.202
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install the IOM(M008) and IOM(M009) modules in the left AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) After 1.5 minutes, look at the message on the MAT:
- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 7) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M008) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (a) Re-install the IOM(M009) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (d) After 1.5 minutes, look at the message on the MAT:
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M009) module in the left AIMS cabinet. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASK 888

D633W103-ARO

Page 298.203
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
- Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) After 1.5 minutes, look at the message on the MAT:
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

889. Wing Flight Control Shutoff Valve in Center Hydraulic System Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17020.

B. Initial Evaluation

- (1) Set the C WING switch, S5, on the flight control hydraulic valve power panel, M27035, to the NORM position.

NOTE: This fault can occur when the C WING switch is in the SHUTOFF position.

- (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence
 - 2) 27-Primary Flight Controls, System Test, Center Aileron Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 4) If the maintenance message shows on one of the ground test displays, then do the Fault Isolation Procedure below.
 - 5) If the maintenance message does not show on the ground test displays, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to replace the C WING switch:
 - (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

- (b) Replace the C WING switch, S5, on the flight control hydraulic valve power panel, M27035 (WDM 27-02-55).
- (c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

- (d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (e) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence

EFFECTIVITY
ARO ALL

27-02 TASKS 888-889

D633W103-ARO

Page 298.204
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 2) 27-Primary Flight Controls, System Test, Center Aileron Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 4) If the maintenance message does not show on the ground test displays, you corrected the fault.
 - 5) If the maintenance message shows on one of the ground test displays, then continue.
- (2) Do this check of the wiring:
- (a) Disconnect connector DM27035A from the flight control hydraulic valve power panel, M27035.
 - (b) Disconnect connector DV27099 from the center wing hydraulic shutoff valves, V27099.
 - (c) Disconnect connector D11035P from the P110 left power management panel.
 - (d) Do a wiring check between these pins of connector DM27035A at the overhead panel, P61, and connector DV27099 at the center wing hydraulic shutoff valve, V27099 (WDM 27-02-55):

DM27035A	DV27099
pin 9	pin 3
 - (e) Do a wiring check between these pins of connector DM27035A at the overhead panel, P61, and connector D11035P at the P110 panel (WDM 27-02-55):

DM27035A	D11035P
pin 8	pin 14
 - (f) Do a wiring check between these pins of connector D11035P at the P110 panel and connector DV27099 at the center wing hydraulic shutoff valve, V27099 (WDM 27-02-55):

D11035P	DV27099
pin 13	pin 2
 - (g) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27035A.
 - 3) Re-connect connector DV27099.
 - 4) Re-connect connector D11035P.
 - 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 6) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - a) 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence
 - b) 27-Primary Flight Controls, System Test, Center Aileron Actuator Confidence
 - c) 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 7) If the maintenance message does not show on the ground test displays, you corrected the fault.
 - (h) If you do not find a problem with the wiring, then continue.
 - (i) Re-connect connector DM27035A.

EFFECTIVITY
ARO ALL

27-02 TASK 889

D633W103-ARO

Page 298.205
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (j) Re-connect connector DV27099.
- (3) Replace the air/ground relay, K32120 on the P110 left power management panel.
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence
 - 2) 27-Primary Flight Controls, System Test, Center Aileron Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 4) If the maintenance message does not show on the ground test displays, you corrected the fault.
 - 5) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the center wing hydraulic shutoff valve, V27099. These are the tasks:
 - Hydraulic Shutoff Valve Removal, AMM TASK 27-02-32-000-801
 - Hydraulic Shutoff Valve Installation, AMM TASK 27-02-32-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence
 - 2) 27-Primary Flight Controls, System Test, Center Aileron Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 4) If the maintenance message does not show on the ground test displays, you corrected the fault.

————— END OF TASK —————

890. Wing Flight Control Shutoff Valve in Right Hydraulic System Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17021.

B. Initial Evaluation

- (1) Set the R WING switch, S6, on the flight control hydraulic valve power panel, M27035, to the NORM position.

NOTE: This fault can occur when the R WING switch is in the SHUTOFF position.

 - (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence
 - 2) 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 3) If the maintenance message shows on one of the ground test displays, then do the Fault Isolation Procedure below.
 - 4) If the maintenance message does not show on the ground test displays, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 889-890

D633W103-ARO

Page 298.206
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

(1) Do these steps to replace the R WING switch:

(a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	6	C27620	R FC SOV WG

(b) Replace the R WING switch, S6, on the flight control hydraulic valve power panel, M27035 (WDM 27-02-53).

(c) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	6	C27620	R FC SOV WG

(d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

(e) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:

- 1) 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence
- 2) 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- 3) If the maintenance message does not show on the ground test displays, you corrected the fault.
- 4) If the maintenance message shows on one of the ground test displays, then continue.

(2) Do this check of the wiring:

(a) Disconnect connector DM27035B from the flight control hydraulic valve power panel, M27035.

(b) Disconnect connector DV27098 from the right wing hydraulic shutoff valves, V27098.

(c) Do a wiring check between these pins of connector DM27035B at the overhead panel, P61, and connector DV27098 at the right wing hydraulic shutoff valve, V27098 (WDM 27-02-53):

DM27035B	DV27098
pin 33	pin 3
pin 54	pin 2

(d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27035B.
- 3) Re-connect connector DV27098.
- 4) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 5) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - a) 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence

EFFECTIVITY
ARO ALL

27-02 TASK 890

D633W103-ARO

Page 298.207
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- 6) If the maintenance message does not show on the ground test displays, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27035B.
- (3) Replace the right wing hydraulic shutoff valve, V27098. These are the tasks:
 - Hydraulic Shutoff Valve Removal, AMM TASK 27-02-32-000-801
 - Hydraulic Shutoff Valve Installation, AMM TASK 27-02-32-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence
 - 2) 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 3) If the maintenance message does not show on the ground test displays, you corrected the fault.

————— END OF TASK —————

891. Tail Flight Control Shutoff Valve in Center Hydraulic System Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17023.

B. Initial Evaluation

- (1) Set the C TAIL switch, S2, on the flight control hydraulic valve power panel, M27035, to the NORM position.

NOTE: This fault can occur when the C TAIL switch is in the SHUTOFF position.

- (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Stabilizer System
 - 2) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 4) If the maintenance message shows on one of the ground test displays, then do the Fault Isolation Procedure below.
 - 5) If the maintenance message does not show on the ground test displays, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to replace the L TAIL switch:
 - (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL

EFFECTIVITY
ARO ALL

27-02 TASKS 890-891

D633W103-ARO

Page 298.208
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (b) Replace the C TAIL switch, S2 on the flight control hydraulic valve power panel, M27035 (WDM 27-02-55).
- (c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL

- (d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (e) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Stabilizer System
 - 2) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 4) If the maintenance message does not shows on the ground test displays, you corrected the fault.
 - 5) If the maintenance message shows on one of the ground test display, then continue.
- (2) Do this check of the wiring:
- (a) Disconnect connector DM27035A from the flight control hydraulic valve power panel, M27035.
 - (b) Disconnect connector DV27103 from the center tail hydraulic shutoff valves, V27101.
 - (c) Disconnect connector D11035P from the P110 left power management panel.
 - (d) Do a wiring check between these pins of connector DM27035A at the overhead panel, P61, and connector DV27103 at the center tail hydraulic shutoff valve, V27103 (WDM 27-02-55):

DM27035A	DV27103
pin 21	pin 3

- (e) Do a wiring check between these pins of connector DM27035A at the overhead panel, P61, and connector D11035P at the P110 panel (WDM 27-02-55):

DM27035A	D11035P
pin 20	pin 2

- (f) Do a wiring check between these pins of connector D11035P at the P110 panel and connector DV27103 at the center tail hydraulic shutoff valve, V27103 (WDM 27-02-55):

D11035P	DV27103
pin 1	pin 2

- (g) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27035A.
 - 3) Re-connect connector D11035P.
 - 4) Re-connect connector DV27103.

EFFECTIVITY
ARO ALL

27-02 TASK 891

D633W103-ARO

Page 298.209
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - a) 27-Primary Flight Controls, System Test, Stabilizer System
 - b) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - c) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- 7) If the maintenance message does not shows on the ground test displays, you corrected the fault.
- (h) If you do not find a problem with the wiring, then continue.
- (i) Re-connect connector DM27035A.
- (j) Re-connect connector DV27103.
- (3) Replace the air/ground relay, K32119 on the P110 left power management panel.
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Stabilizer System
 - 2) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 4) If the maintenance message does not shows on the ground test displays, you corrected the fault.
 - 5) If the maintenance message shows on the ground test displays, then continue.
- (4) Replace the center tail hydraulic shutoff valve, V27103. These are the tasks:
 - Hydraulic Shutoff Valve Removal, AMM TASK 27-02-32-000-801
 - Hydraulic Shutoff Valve Installation, AMM TASK 27-02-32-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Stabilizer System
 - 2) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 4) If the maintenance message does not shows on the ground test displays, you corrected the fault.

————— **END OF TASK** —————

892. Tail Flight Control Shutoff Valve in Right Hydraulic System Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17024.

B. Initial Evaluation

- (1) Set the R TAIL switch, S3, on the flight control hydraulic valve power panel, M27035, to the NORM position.

NOTE: This fault can occur when the R TAIL switch is in the SHUTOFF position.

EFFECTIVITY
ARO ALL

27-02 TASKS 891-892

D633W103-ARO

Page 298.210
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Stabilizer System
 - 2) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 4) If the maintenance message shows on one of the ground test displays, then do the Fault Isolation Procedure below.
 - 5) If the maintenance message does not show on the ground test displays, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to replace the R TAIL switch:

- (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	7	C27623	R FC SOV TAIL

- (b) Replace the R TAIL switch, S3 on the flight control hydraulic valve power panel, M27035 (WDM 27-02-53).
 - (c) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	7	C27623	R FC SOV TAIL

- (d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (e) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Stabilizer System
 - 2) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 4) If the maintenance message does not shows on the ground test displays, you corrected the fault.
 - 5) If the maintenance message shows on one of the ground test display, then continue.
 - (2) Do this check of the wiring:
 - (a) Disconnect connector DM27035B from the flight control hydraulic valve power panel, M27035.
 - (b) Disconnect connector DV27102 from the right tail hydraulic shutoff valves, V27102.
 - (c) Do a wiring check between these pins of connector DM27035B at the overhead panel, P61, and connector DV27102 at the right tail hydraulic shutoff valve, V27102 (WDM 27-02-53):

EFFECTIVITY
ARO ALL

27-02 TASK 892

D633W103-ARO

Page 298.211
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27035B

pin 17 pin 3
pin 55 pin 2

DV27102

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27035B.
 - 3) Re-connect connector DV27102.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 5) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - a) 27-Primary Flight Controls, System Test, Stabilizer System
 - b) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - c) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 6) If the maintenance message does not shows on the ground test displays, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27035B.
- (3) Replace the right tail hydraulic shutoff valve, V27102. These are the tasks:
 - Hydraulic Shutoff Valve Removal, AMM TASK 27-02-32-000-801
 - Hydraulic Shutoff Valve Installation, AMM TASK 27-02-32-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do these ground tests on the MAT one at a time and look for the maintenance message:
 - 1) 27-Primary Flight Controls, System Test, Stabilizer System
 - 2) 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence
 - 3) 27-Primary Flight Controls, System Test, Rudder Actuator Confidence
 - 4) If the maintenance message does not shows on the ground test displays, you corrected the fault.

————— END OF TASK —————

893. Auto Speedbrake Thrust Reverser Switch Status from AIMS (left) and AIMS (right) Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-18310.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASKS 892-893

D633W103-ARO

Page 298.212
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) 27-Primary Flight Controls, System Test, Speedbrake System.

NOTE: The RESET LATCH may display on the MAT during the System Test if there is an existing fault. Select RESET LATCH to reset the fault and continue the test.

- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring.
 - (a) Do a check check for continuity between terminal PB5 on terminal block TB1009 and structure ground (WDM 27-61-20).
 - (b) Remove the IOM(M003) and IOM(M004) cards from the AIMS-L cabinet, M31101. To remove them, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (c) Do a wiring check between these terminals of terminal block TB1009 and the connectors for the IOM modules (at the AIMS-L cabinet) (WDM 27-61-20).

TB1009	J240-A
term PA5	pin C17
term PA6	pin D1

TB1009	J250-A
term PA5	pin C17
term PA6	pin D1

- (d) Remove the IOM(M003) and IOM(M004) cards from the AIMS-R cabinet, M31201. To remove them, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (e) Do a wiring check between these terminals of terminal block TB1009 and the connectors for the IOM modules (at the AIMS-R cabinet) (WDM 27-61-20).

TB1009	J240-A
term PA5	pin C17
term PA6	pin D1

TB1009	J250-A
term PA5	pin C17
term PA6	pin D1

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-Install the IOM cards. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.

EFFECTIVITY
ARO ALL

27-02 TASK 893

D633W103-ARO

Page 298.213
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

(g) If you did not find a problem with the wiring, then continue.
- (2) Replace the auto speedbrake RTO (rejected takeoff) switch (also called the auto speedbrake armed or auto speedbrake thrust reverser switch), S27056. To adjust the switch, do this task: Speedbrake Control System - Adjustment, AMM TASK 27-62-00-820-801
 - (a) Do this ground test on the MAT:
 - (b) 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Replace the core processor module/communication in the AIMS-L cabinet, M31101. These are the tasks:
 - Core Processor Module/Communication (CPM/Comm) Removal, AMM TASK 31-41-04-000-802
 - Core Processor Module/Communication (CPM/Comm) Installation, AMM TASK 31-41-04-400-802
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 4) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Replace the core processor module/communication in the AIMS-R cabinet, M31201. These are the tasks:
 - Core Processor Module/Communication (CPM/Comm) Removal, AMM TASK 31-41-04-000-802
 - Core Processor Module/Communication (CPM/Comm) Installation, AMM TASK 31-41-04-400-802
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.

EFFECTIVITY
ARO ALL

27-02 TASK 893

D633W103-ARO

Page 298.214
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 4) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (5) Replace the IOM(M003) and IOM(M004) cards in the AIMS-L cabinet, M31101. Replace the IOM(M003) and IOM(M004) cards in the AIMS-R cabinet, M32201. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

894. Flap or Slat Position Signals From FSEU 1 and FSEU 2 Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-18510, 27-18550, 27-18560.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit to PFC Interface.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap/slat Electronics Unit (FSEU) 1, M27001.
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the FSEU 2, M27002.
 - (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASKS 893-894

D633W103-ARO

Page 298.215
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the #1 IOM (M009) in the left AIMS cabinet. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the #2 IOM (M008) in the left AIMS cabinet. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the #2 IOM (M008) in the right AIMS cabinet. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the #3 IOM (M004) in the right AIMS cabinet. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Flap/Slat Electronics Unit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

895. Gear Not Tilt Signals Disagree (PSEU-1) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-18860.

EFFECTIVITY
ARO ALL

27-02 TASKS 894-895

D633W103-ARO

Page 298.216
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Speedbrake System.
NOTE: The RESET LATCH may display on the MAT during the System Test if there is an existing fault. Select RESET LATCH to reset the fault and continue the test.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the discrete wiring for the left aircraft information management system (AIMS-L), M31101:
 - (a) Remove the #1 IOM(M009) from the left AIMS cabinet at E3-1 shelf. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Remove the #2 IOM(M008) from the left AIMS cabinet at E3-1 shelf. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (c) Do a wiring check between these contacts of terminal block TB3002 (on the left integration panel, P105) and the connector for the IOM module (at the left AIMS cabinet) (WDM 31-41-19):

TB3002	J410-A
term QA17	pin E7

- (d) Do a wiring check between these contacts of terminal block TB3002 (on the left integration panel, P105) and the connector for the IOM module (at the left AIMS cabinet) (WDM 31-41-19):

TB3002	J420-A
term QA17	pin E7

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the #1 IOM(M009) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the #2 IOM(M008) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Speedbrake System.
<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.

EFFECTIVITY
ARO ALL

27-02 TASK 895

D633W103-ARO

Page 298.217
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- c) If the maintenance message does not show on the ground test display, then you corrected the fault.
- f) If you do not find a problem with the wiring, then continue.
- g) Re-install the #1 IOM(M009) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- h) Re-install the #2 IOM(M008) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (2) Do this check of the discrete wiring for the AIMS-R, M31201:
 - a) Remove the #1 IOM(M009) from the right AIMS cabinet at E2-1 shelf. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - b) Remove the #2 IOM(M008) from the right AIMS cabinet at E2-1 shelf. To remove it, do this task:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - c) Do a wiring check between these contacts of terminal block TB3002 (on the left integration panel, P105) and the connector for the IOM module (at the right AIMS cabinet) (WDM 31-41-19):

TB3002	J410-A
term QA17	pin E7
 - d) Do a wiring check between these contacts of terminal block TB3002 (on the left integration panel, P105) and the connector for the IOM module (at the right AIMS cabinet) (WDM 31-41-19):

TB3002	J420-A
term QA17	pin E7
 - e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the #1 IOM(M009) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the #2 IOM(M008) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
 - g) Install a new #1 IOM(M009) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.

EFFECTIVITY
ARO ALL

27-02 TASK 895

D633W103-ARO

Page 298.218
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Speedbrake System.
 <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - d) If the maintenance message shows on the ground test display, then continue.
- (h) Install a new #2 IOM(M008) in the right AIMS cabinet. To install it, do this task:
Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 1) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Speedbrake System.
 <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - d) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the #1 IOM(M009) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the #2 IOM(M008) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-02 TASK 895

D633W103-ARO

Page 298.219
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

896. Air/Ground Signal from Left WOW Card and Right WOW Card Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-18910.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:

NOTE: This ground test unlatches the fault, but does not do a test of the system. This test will show FAILED, ignore the failure.

- (a) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.

NOTE: After 2.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.

- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the left weight-on-wheels (WOW) card, A16, in the left system cardfile (LSCF), P85. These are the tasks:

- Weight-on-Wheels (WOW) Card Removal, AMM TASK 32-09-02-000-801
- Weight-on-Wheels (WOW) Card Installation, AMM TASK 32-09-02-400-801

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.

NOTE: After 2.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.

- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the right WOW card, A16, in the right system cardfile (RSCF), P84. These are the tasks:
 - Weight-on-Wheels (WOW) Card Removal, AMM TASK 32-09-02-000-801
 - Weight-on-Wheels (WOW) Card Installation, AMM TASK 32-09-02-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.

NOTE: After 2.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Replace the left WOW load sensor - left system, M32101. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASK 896

D633W103-ARO

Page 298.220
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- WOW Load Sensor Removal, AMM TASK 32-09-03-000-801
 - WOW Load Sensor Installation, AMM TASK 32-09-03-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.
NOTE: After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Replace the right WOW load sensor - left system, M32102. These are the tasks:
- WOW Load Sensor Removal, AMM TASK 32-09-03-000-801
 - WOW Load Sensor Installation, AMM TASK 32-09-03-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.
NOTE: After 2.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (5) Replace the left WOW load sensor - right system, M32201. These are the tasks:
- WOW Load Sensor Removal, AMM TASK 32-09-03-000-801
 - WOW Load Sensor Installation, AMM TASK 32-09-03-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.
NOTE: After 2.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (6) Replace the right WOW load sensor - right system, M32202. These are the tasks:
- WOW Load Sensor Removal, AMM TASK 32-09-03-000-801
 - WOW Load Sensor Installation, AMM TASK 32-09-03-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.
NOTE: After 2.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 896

D633W103-ARO

Page 298.221
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (7) Do this check of the wiring between the left WOW card and WOW load sensor:
- (a) Remove the left WOW card, A16 in the LSCF, P85. To remove it, do this task: Weight-on-Wheels (WOW) Card Removal, AMM TASK 32-09-02-000-801.
 - (b) Disconnect connector DM32101 from the left WOW load sensor, M32101.
 - (c) Disconnect connector DM32102 from the right WOW load sensor, M32102.
 - (d) Do this check of the wiring between these pins of connector XA16 at the LSCF, P85, and connector DM32101 at the left WOW load sensor, M32101 (SSM 32-09-11):

XA16	DM32101
pin 24	pin 1
pin 27	pin 2
pin 30	pin 3

- (e) Do this check of the wiring between these pins of connector XA16 at the LSCF, P85, and connector DM32102 at the right WOW load sensor, M32102 (SSM 32-09-11):

XA16	DM32102
pin 12	pin 1
pin 15	pin 2
pin 18	pin 3

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connectors DM32101 and DM32102.
 - 3) Re-install the left WOW card, A16. To install it, do this task: Weight-on-Wheels (WOW) Card Installation, AMM TASK 32-09-02-400-801.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.
NOTE: After 2.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - b) If the MAT shows NOT ACTIVE (or if the message does not show), corrected the fault.
 - (g) If you do not find a problem with the wiring, then continue.
 - (h) Re-connect connectors DM32101 and DM32102.
 - (i) Re-install the left WOW card, A16. To install it, do this task: Weight-on-Wheels (WOW) Card Installation, AMM TASK 32-09-02-400-801.
- (8) Do this check of the wiring between the right WOW card and WOW load sensor:
- (a) Remove the right WOW card, A16 in the RSCF, P84. To remove it, do this task: Weight-on-Wheels (WOW) Card Removal, AMM TASK 32-09-02-000-801.
 - (b) Disconnect connector DM32201 from the left WOW load sensor, M32201.
 - (c) Disconnect connector DM32202 from the right WOW load sensor, M32202.
 - (d) Do this check of the wiring between these pins of connector XA16 at the RSCF, P84, and connector DM32201 at the left WOW load sensor, M32201 (SSM 32-09-12):

EFFECTIVITY
ARO ALL

27-02 TASK 896

D633W103-ARO

Page 298.222
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

XA16	DM32201
pin 24	pin 1
pin 27	pin 2
pin 30	pin 3

- (e) Do this check of the wiring between these pins of connector XA16 at the RSCF, P84, and connector DM32202 at the right WOW load sensor, M32202 (SSM 32-09-12):

XA16	DM32202
pin 12	pin 1
pin 15	pin 2
pin 18	pin 3

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connectors DM32201 and DM32202.
 - 3) Re-install the right WOW card, A16. To install it, do this task: Weight-on-Wheels (WOW) Card Installation, AMM TASK 32-09-02-400-801.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.
NOTE: After 2.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (h) Re-connect connectors DM32201 and DM32202.
- (i) Re-install the right WOW card, A16. To install it, do this task: Weight-on-Wheels (WOW) Card Installation, AMM TASK 32-09-02-400-801.
- (9) Replace the #1 IOM (M009) in the left AIMS cabinet. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.
NOTE: After 2.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (10) Replace the #3 IOM (M004) in the left AIMS cabinet. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASK 896

D633W103-ARO

Page 298.223
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.
NOTE: After 2.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (11) Replace the #1 IOM (M009) in the right AIMS cabinet. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.
NOTE: After 2.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (12) Replace the #3 IOM (M004) in the right AIMS cabinet. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Air/Ground System to PFC Interface.
NOTE: After 2.0 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display on the MAT.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

897. Gear Not Tilt Signals Disagree (PSEU-2) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19470.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

NOTE: The RESET LATCH may display on the MAT during the System Test if there is an existing fault. Select RESET LATCH to reset the fault and continue the test.

- (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.

EFFECTIVITY
ARO ALL

27-02 TASKS 896-897

D633W103-ARO

Page 298.224
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) To verify that the cause of the fault is not latent, do this task: Test of the Truck Tilt Sensor, AMM TASK 32-61-03-700-801. Disregard any MAT instructions to cycle the landing gear.

C. Fault Isolation Procedure

- (1) Do this check of the discrete wiring for the left aircraft information management system (AIMS-L), M31101:
 - (a) Remove the #3 IOM(M004) from the left AIMS cabinet at E3-1 shelf. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Remove the #4 IOM(M003) from the left AIMS cabinet at E3-1 shelf. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (c) Do a wiring check between these contacts of terminal block TB4001 (on the right integration panel, P205) and the connector for the IOM module (at the left AIMS cabinet) (WDM 31-41-19):

TB4001	J240-A
term QB31	pin D6

- (d) Do a wiring check between these contacts of terminal block TB4001 (on the right integration panel, P205) and the connector for the IOM module (at the left AIMS cabinet) (WDM 31-41-19):

TB4001	J250-A
term QB31	pin D6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the #3 IOM(M004) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the #4 IOM(M003) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-install the #3 IOM(M004) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.

EFFECTIVITY
ARO ALL

27-02 TASK 897

D633W103-ARO

Page 298.225
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (h) Re-install the #4 IOM(M003) in the left AIMS cabinet. To install it, do this task:
Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (2) Do this check of the discrete wiring for the AIMS-R, M31201:
 - (a) Remove the #3 IOM(M004) from the right AIMS cabinet at E2-1 shelf. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Remove the #4 IOM(M003) from the right AIMS cabinet at E2-1 shelf. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (c) Do a wiring check between these contacts of terminal block TB4001 (on the right integration panel, P205) and the connector for the IOM module (at the left AIMS cabinet) (WDM 31-41-19):

TB4001	J240-A
term QB31	pin D6

- (d) Do a wiring check between these contacts of terminal block TB4001 (on the right integration panel, P205) and the connector for the IOM module (at the left AIMS cabinet) (WDM 31-41-19):

TB4001	J250-A
term QB31	pin D6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the #3 IOM(M004) in the right AIMS cabinet. To install it, do this task:
Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the #4 IOM(M003) in the right AIMS cabinet. To install it, do this task:
Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Install a new #3 IOM(M004) in the right AIMS cabinet. To install it, do this task:
Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 1) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 897

D633W103-ARO

Page 298.226
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- d) If the maintenance message shows on the ground test display, then continue.
- (h) Install a new #4 IOM(M003) in the right AIMS cabinet. To install it, do this task:
Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 1) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Speedbrake System.
<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - d) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the #3 IOM(M004) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the #4 IOM(M003) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

898. Gear Tilt Pressure Left Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-18830.

B. Description

This maintenance message will occur if the flight crew did an alternate extension of the landing gear when there was center hydraulic pressure.

The Gear Tilt Pressure AUTO SPEEDBRAKE message might be caused by an internal hydraulic leak within the hydraulic circuit downstream of the tilt fuse.

EFFECTIVITY
ARO ALL

27-02 TASKS 897-898

D633W103-ARO

Page 298.227
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

In most cases, these messages were also cleared by resetting the fuse. In this situation, the internal leakage problem can be intermittent and requires no further action.

C. Initial Evaluation

NOTE: By resetting the hydraulic fuse, it may clear the maintenance message and no further action is required.

- (1) Do these steps to reset the hydraulic fuse:
 - (a) Depressurize the hydraulic system below 5 psig (34 kPa) (Main Hydraulic System and the Reservoir Depressurization, AMM TASK 29-11-00-860-807).
 - (b) Wait one minute for the hydraulic fuse to reset.
 - 1) If the maintenance message does not show on the ground test display, then there was an intermittent fault and requires no further action.
 - 2) If the maintenance message shows on the ground test display, then continue.

NOTE: If maintenance messages 27-18830 and 27-19510 show, and there was an alternate extension of the landing gear, then only do the ground test below. This will erase the maintenance messages. No repair is necessary.

If these messages show repeatedly and the messages are erased by resetting the MLG truck positioner actuator tilt fuse each time, the fault could be due to internal hydraulic leakage.

- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Control, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 4) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - 5) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 6) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

D. Fault Isolation Procedure



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED IN ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed in all the landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-02 TASK 898

D633W103-ARO

Page 298.228
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE INSTALLATION PROCEDURE FOR THE LANDING GEAR DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) If the door safety pins are not installed, do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the left hydraulic truck tilt pressure transducer, M29111. These are the tasks:
 - Main Landing Gear Truck Tilt Pressure Transducer - Removal, AMM TASK 32-32-22-000-801
 - Main Landing Gear Truck Tilt Pressure Transducer - Installation, AMM TASK 32-32-22-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Control, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 4) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 5) If the maintenance message shows on the ground test display, then continue.
 - 6) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (4) Do a check of the left truck tilt pressure:
 - (a) Make sure the control lever for the landing gear is in the DN position.
 - (b) Do this task: Supply Electrical Power, AMM TASK 24-22-00-860-805.
 - (c) Show the LANDING GEAR ACTN/INDN maintenance page on the right inboard display unit (AMM TASK 31-61-00-800-804).

NOTE: Use one of the control display units (CDUs) in the flight compartment to show the LANDING GEAR ACTN/INDN maintenance page.
 - (d) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (e) If the left TRUCK TILT indication on the LANDING GEAR ACTN/INDN maintenance page is not between 2750 and 3050 psig, then examine these components for external and internal hydraulic fluid leaks:

NOTE: You can possibly find internal leaks by examining the component for a warm temperature or by listening for the sound of leaking hydraulic fluid. A stethoscope with a probe attachment can help you hear the sound of internal leaks.

 - 1) Examine the hydraulic tubes or hoses for leaks.
 - 2) If there is a leak, do the steps that follow:
 - a) Repair the hydraulic tubes or hoses.
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.

EFFECTIVITY
ARO ALL

27-02 TASK 898

D633W103-ARO

Page 298.229
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - f) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- 3) If there is no leak, then continue.
- 4) Examine left truck positioner actuator hydraulic fuses for leaks.
- NOTE: Listen for fluid bypassing and touch to see if warm.
- 5) If there is a leak, do the steps that follow:
- a) Replace the applicable truck positioner actuator hydraulic fuse. These are the tasks:
 - Main Landing Gear Hydraulic Fuses Removal, AMM TASK 32-32-19-020-801
 - Main Landing Gear Hydraulic Fuses Installation, AMM TASK 32-32-19-420-801
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.

<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- 6) If there is no leak, then continue.
- 7) For airplanes with horizontal side brace downlock actuators and springs, examine the left side brace downlock actuator trunion mount swivel for leaks.
- NOTE: Listen for fluid bypassing and touch to see if warm.
- 8) If there is a leak, do the steps that follow:
- a) Replace the left side brace downlock actuator trunion mount swivel. These are the tasks:
 - Main Landing Gear Side Brace Downlock Actuator Trunion Mount Swivel Removal, AMM TASK 32-32-04-020-807-002
 - Main Landing Gear Side Brace Downlock Actuator Trunion Mount Swivel Installation, AMM TASK 32-32-04-420-807-002
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.

EFFECTIVITY
ARO ALL

27-02 TASK 898

D633W103-ARO

Page 298.230
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- 9) If there is no leak, then continue.
- 10) Examine left side brace downlock actuator for leaks.
- NOTE: Listen for fluid bypassing and touch to see if warm.
- 11) If there is a leak, do the steps that follow:
- a) Replace the left side brace downlock actuator. These are the tasks:
 - Main Landing Gear Side Brace Downlock Actuator Removal, AMM TASK 32-32-04-020-804-002
 - Main Landing Gear Side Brace Downlock Actuator Installation, AMM TASK 32-32-04-420-804-002
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.

<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- 12) If there is no leak, then continue.
- 13) For airplanes with horizontal drag brace downlock actuators and springs, examine the left drag brace downlock actuator trunion mount swivel for leaks.
- NOTE: Listen for fluid bypassing and touch to see if warm.
- 14) If there is a leak, do the steps that follow:
- a) Replace the left drag brace downlock actuator trunion mount swivel. These are the tasks:
 - Main Landing Gear Drag Brace Downlock Actuator Trunnion Mount Swivel Removal, AMM TASK 32-32-05-020-805-002
 - Main Landing Gear Drag Brace Downlock Actuator Trunnion Mount Swivel Installation, AMM TASK 32-32-05-420-805-002
 - b) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASK 898

D633W103-ARO

Page 298.231
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- c) 27-Primary Flight Control, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- 15) If there is no leak, then continue.
- 16) Examine left drag brace downlock actuator for leaks.
NOTE: Listen for fluid bypassing and touch to see if warm.
- 17) If there is a leak, do the steps that follow:
- a) Replace the left drag brace downlock actuator. These are the tasks:
 - Main Landing Gear Drag Brace Downlock Actuator Removal, AMM TASK 32-32-05-020-804-002
 - Main Landing Gear Drag Brace Downlock Actuator Installation, AMM TASK 32-32-05-420-804-002
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- 18) If there is no leak, then continue.
- 19) Do the steps that follow for the truck positioner actuator hydraulic fuses:
- a) Replace the truck positioner actuator hydraulic fuses. These are the tasks:
 - Main Landing Gear Hydraulic Fuses Removal, AMM TASK 32-32-19-020-801
 - Main Landing Gear Hydraulic Fuses Installation, AMM TASK 32-32-19-420-801
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.

EFFECTIVITY
ARO ALL

27-02 TASK 898

D633W103-ARO

Page 298.232
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - h) If the maintenance message shows on the ground test display, then continue.
- 20) Do the steps that follow for the left side brace downlock actuator trunion mount swivel:
- a) Replace the left side brace downlock actuator trunion mount swivel. These are the tasks:
 - Main Landing Gear Side Brace Downlock Actuator Trunnion Mount Swivel Removal, AMM TASK 32-32-04-020-807-002
 - Main Landing Gear Side Brace Downlock Actuator Trunnion Mount Swivel Installation, AMM TASK 32-32-04-420-807-002
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - h) If the maintenance message shows on the ground test display, then continue.
- 21) Do the steps that follow for the left drag brace downlock actuator trunion mount swivel:
- a) Replace the left drag brace downlock actuator trunion mount swivel. These are the tasks:
 - Main Landing Gear Drag Brace Downlock Actuator Trunnion Mount Swivel Removal, AMM TASK 32-32-05-020-805-002
 - Main Landing Gear Drag Brace Downlock Actuator Trunnion Mount Swivel Installation, AMM TASK 32-32-05-420-805-002
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.

EFFECTIVITY
ARO ALL

27-02 TASK 898

D633W103-ARO

Page 298.233
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - h) If the maintenance message shows on the ground test display, then continue.
- 22) Do the steps that follow for the left side brace downlock actuator:
- a) Replace the left side brace downlock actuator. These are the tasks:
 - Main Landing Gear Side Brace Downlock Actuator Removal, AMM TASK 32-32-04-020-804-002
 - Main Landing Gear Side Brace Downlock Actuator Installation, AMM TASK 32-32-04-420-804-002
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - h) If the maintenance message shows on the ground test display, then continue.
- 23) Do the steps that follow for the left drag brace downlock actuator:
- a) Replace the left drag brace downlock actuator. These are the tasks:
 - Main Landing Gear Drag Brace Downlock Actuator Removal, AMM TASK 32-32-05-020-804-002
 - Main Landing Gear Drag Brace Downlock Actuator Installation, AMM TASK 32-32-05-420-804-002
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 898

D633W103-ARO

Page 298.234
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- h) If the maintenance message shows on the ground test display, then continue.
- (f) If the left TRUCK TILT indication on the LANDING GEAR ACTN/INDN maintenance page is between 2750 and 3050 or if it does not show, then continue.
- (5) Replace the left hydraulic interface module (HYDIM) card in the left system card file, P85. These are the tasks:
 - Hydraulic Interface Module (HYDIM) Cards Removal, AMM TASK 29-11-50-000-801
 - Hydraulic Interface Module (HYDIM) Cards Installation, AMM TASK 29-11-50-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Control, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 4) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 5) If the maintenance message shows on the ground test display, then continue.
 - 6) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (6) Do this check of the wiring:
 - (a) Remove the HYDIM-L card from the P85 card file. To remove it, do this task: Hydraulic Interface Module (HYDIM) Cards Removal, AMM TASK 29-11-50-000-801.
 - (b) Disconnect connector DM29111 from the left hydraulic truck tilt pressure transducer, M29111.
 - (c) Do a wiring check between these contacts of connector DM29111 (for the transducer) and connector XA17 for the HYDIM-L (at the P85 card file) (SSM 29-11-12), (WDM 29-11-12):

DM29111	XA17
pin 2	pin 73
pin 3	pin 71

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the HYDIM-L. To install it, do this task: Hydraulic Interface Module (HYDIM) Cards Installation, AMM TASK 29-11-50-400-801.
 - 3) Re-connect connector DM29111 to the transducer, M29111.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Control, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.

EFFECTIVITY
ARO ALL

27-02 TASK 898

D633W103-ARO

Page 298.235
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- c) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- d) If the maintenance message does not show on the ground test display, then you corrected the fault.
- e) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

E. Put the Airplane Back to Its Usual Condition



OBEY THE REMOVAL PROCEDURE FOR THE LANDING GEAR DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

————— END OF TASK —————

899. Altitude Signal from RA (Left) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19010.

B. Initial Evaluation

- (1) If the AUTO SPEEDBRAKE EICAS message appears after cycling the LEFT RADIO ALT, C34431, RIGHT RADIO ALT, C4432, and CENTER RADIO ALT, C4433 Circuit Breakers, then cycle the hydraulic power off and back on again. Do these tasks to cycle the hydraulic power:
 - Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808
 - Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Speedbrake System.
NOTE: The RESET LATCH may display on the MAT during the System Test if there is an existing fault. Select RESET LATCH to reset the fault and continue the test.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 898-899

D633W103-ARO

Page 298.236
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Look at the Extended Maintenance, Existing Faults display on the MAT.
 - (a) If a maintenance message related to the left radio altimeter (RA) transceiver, then do these steps:
 - 1) Find the message in the applicable FIM Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - 3) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Speedbrake System.
<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If maintenance message 27-19010 does not show on the ground test display, you corrected the fault.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) If maintenance message 27-19010 shows on the ground test display, then continue.
 - (b) If a maintenance message related to left RA transceiver does not show in Existing Faults, then continue.
- (2) Replace the left radio altimeter (RA) transceiver, M34112. These are the tasks:
 - Radio Altimeter Transceiver Removal, AMM TASK 34-33-01-000-801
 - Radio Altimeter Transceiver Installation, AMM TASK 34-33-01-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the #3 IOM (M004) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK 899

D633W103-ARO

Page 298.237
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Replace the #4 IOM (M003) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the #3 IOM (M004) in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the #4 IOM (M003) in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.

— END OF TASK —

900. Radio Altitude Transceiver (Center) Test Inhibit Signals Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19050.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASKS 899-900

D633W103-ARO

Page 298.238
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the center radio altimeter (RA) transceiver, M34312. These are the tasks:
 - Radio Altimeter Transceiver Removal, AMM TASK 34-33-01-000-801
 - Radio Altimeter Transceiver Installation, AMM TASK 34-33-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the test inhibit command wiring from the left AIMS cabinet:
 - (a) Remove the IOM(M003) from the left AIMS cabinet. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Remove the IOM(M004) from the left AIMS cabinet. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (c) Remove the center RA transceiver, M34312. To remove it, do this task: Radio Altimeter Transceiver Removal, AMM TASK 34-33-01-000-801.
 - (d) Do a check of the wiring between these pins of connector DM34312AB at the E5-3 shelf and connector P3-B at the left AIMS cabinet (WDM 34-33-31) (WDM 31-41-93):

DM34312AB	J240-B
pin K6	pin C5
 - (e) Do a check of the wiring between these pins of connector DM34312AB at the E5-3 shelf and connector P4-B at the left AIMS cabinet (WDM 34-33-31) (WDM 31-41-93):

DM34312AB	J250-B
pin K6	pin C5
 - (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IOM(M003) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the IOM(M004) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 4) Re-install the center RA transceiver, M34312. To install it, do this task: Radio Altimeter Transceiver Installation, AMM TASK 34-33-01-400-801.
 - 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.

EFFECTIVITY
ARO ALL

27-02 TASK 900

D633W103-ARO

Page 298.239
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (h) Re-install the IOM(M003) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (i) Re-install the IOM(M004) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (3) Do this check of the test inhibit command wiring from the right AIMS cabinet:
 - (a) Remove the IOM(M003) from the right AIMS cabinet. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Remove the IOM(M004) from the right AIMS cabinet. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (c) Do a check of the wiring between these pins of connector DM34312AB at the E5-3 shelf and connector P3-B at the right AIMS cabinet (WDM 34-33-31) (WDM 31-41-97):

DM34312AB	J240-B
pin K6	pin C5

- (d) Do a check of the wiring between these pins of connector DM34312AB at the E5-3 shelf and connector P4-B at the right AIMS cabinet (WDM 34-33-31) (WDM 31-41-97):

DM34312AB	J250-B
pin K6	pin C5

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IOM(M003) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the IOM(M004) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 4) Re-install the center RA transceiver, M34312. To install it, do this task: Radio Altimeter Transceiver Installation, AMM TASK 34-33-01-400-801.
 - 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-install the IOM(M003) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (h) Re-install the IOM(M004) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (4) Replace the #3 IOM (M004) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 900

D633W103-ARO

Page 298.240
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the #4 IOM (M003) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the #3 IOM (M004) in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the #4 IOM (M003) in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

901. PFC (Left) To Flight Controls 629 Bus Communication Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-18811.

EFFECTIVITY
ARO ALL

27-02 TASKS 900-901

D633W103-ARO

Page 298.241
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: This maintenance message can be reported by a Power Supply Assembly (PSA), Autopilot Flight Director Computer (AFDC), Air Data Inertial Reference Unit (ADIRU), Air Data Module (ADM), Secondary Attitude Air Data Reference Unit (SAARU), or Airplane Information Management System (AIMS). If one of these LRUs has invalid or intermittent communication with the Primary Flight Computer (PFC), the PFC's can invalidate the wordstrings to that LRU. These maintenance messages can sometimes be caused by power interrupts at engine start or ground maintenance actions. If the fault does not clear by running the PFC Transmitter Reset ground test in the Initial Evaluation, troubleshoot the maintenance messages associated with the reporting system before replacing the PFC in the fault Isolation Procedure.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the left PFC, M27106. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

902. Warning Electronic System (Left Channel 1) Signals Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-19150, 27-19160, 27-19190.

B. Initial Evaluation

NOTE: An FSEU (flap/slat electronic unit) fault can cause these Warning Electronic System maintenance messages.

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT for one or more of these maintenance messages:
 - 27-13032
 - 27-13033
 - 27-13034
 - 27-13035
 - 27-13036
 - 27-13037

EFFECTIVITY
ARO ALL

27-02 TASKS 901-902

D633W103-ARO

Page 298.242
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 27-13038
- 27-13039
- 27-13040
- 27-18510
- 27-18550
- 27-18560.

(a) If you find one or more of the maintenance messages given in the list above, then do these steps:

- 1) Find the message in the FIM Maintenance Message Index.
- 2) Do the specified fault isolation task.
- 3) Open and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

- 4) Do this ground test on the MAT:

a) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.

(b) If you do not find one of the maintenance messages given in the list above, then continue.

- (2) Open all of these circuit breakers. After they are all open, then close them:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

- (3) Do this ground test on the MAT:

(a) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.

(b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

(c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASK 902

D633W103-ARO

Page 298.243
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the left warning electronic unit (WEU), M31107. These are the tasks:
 - Warning Electronic Unit Removal, AMM TASK 31-51-01-000-801
 - Warning Electronic Unit Installation, AMM TASK 31-51-01-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the flap/slat electronics unit (FSEU) 1, M27001. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the #1 IOM (M009) in the left AIMS. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the air data inertial reference unit (ADIRU), M34001. These are the tasks:
 - Air Data Inertial Reference Unit - Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
 - (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASK 902

D633W103-ARO

Page 298.244
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

903. Warning Electronic System (Left) Signals Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19230.

B. Initial Evaluation

NOTE: An FSEU (flap/slat electronic unit) fault can cause these Warning Electronic System maintenance messages.

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT for one or more of these maintenance messages: 27-13032, 27-13033, 27-13034, 27-13035, 27-13036, 27-13037, 27-13038, 27-13039, 27-13040, 27-18510, 27-18550, 27-18560.
 - (a) If you find one or more of the maintenance messages given in the list above, then do these steps:
 - 1) Find the message in the FIM Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - 3) Open and then close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - (b) If you do not find one of the maintenance messages given in the list above, then continue.
- (2) Open all of these circuit breakers. After they are all open, then close them:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1

EFFECTIVITY
ARO ALL

27-02 TASKS 902-903

D633W103-ARO

Page 298.245
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C31655	WEU L2

- (3) Do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the left warning electronic unit (WEU), M31107. These are the tasks:
- Warning Electronic Unit Removal, AMM TASK 31-51-01-000-801
 - Warning Electronic Unit Installation, AMM TASK 31-51-01-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the flap/slat electronics unit (FSEU) 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the PFC-C, M27306. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

EFFECTIVITY
ARO ALL

27-02 TASK 903

D633W103-ARO

Page 298.246
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the #1 IOM (M009) in the left AIMS. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the #2 IOM (M008) in the left AIMS. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the secondary attitude air data reference unit (SAARU), M34002. These are the tasks:
 - Secondary Attitude Air Data Reference Unit Removal, AMM TASK 34-21-02-000-801
 - Secondary Attitude Air Data Reference Unit Installation, AMM TASK 34-21-02-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the air data inertial reference unit (ADIRU), M34001. These are the tasks:
 - Air Data Inertial Reference Unit - Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-02 TASK 903

D633W103-ARO

Page 298.247
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

904. Gear Tilt Pressure Right Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19510.

B. Description

This maintenance message will occur if the flight crew did an alternate extension of the landing gear when there was center hydraulic pressure.

The Gear Tilt Pressure AUTO SPEEDBRAKE message might be caused by an internal hydraulic leak within the hydraulic circuit downstream of the tilt fuse.

In most cases, these messages were also cleared by resetting the fuse. In this situation, the internal leakage problem can be intermittent and requires no further action.

C. Initial Evaluation

NOTE: By resetting the hydraulic fuse, it may clear the maintenance message and no further action is required.

- (1) Do these steps to reset the hydraulic fuse:
 - (a) Depressurize the hydraulic system below 5 psig (34 kPa) (Main Hydraulic System and the Reservoir Depressurization, AMM TASK 29-11-00-860-807).
 - (b) Wait one minute for the hydraulic fuse to reset.
 - 1) If the maintenance message does not show on the ground test display, then there was an intermittent fault and requires no further action.
 - 2) If the maintenance message shows on the ground test display, then continue.

NOTE: If maintenance messages 27-18830 and 27-19510 show, and there was an alternate extension of the landing gear, then only do the ground test below. This will erase the maintenance messages. No repair is necessary.

If these messages show repeatedly and the messages are erased by resetting the MLG truck positioner actuator tilt fuse each time, the fault could be due to internal hydraulic leakage.

- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Control, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 4) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - 5) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 6) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

EFFECTIVITY
ARO ALL

27-02 TASK 904

D633W103-ARO

Page 298.248
Sep 05/2017

777-200/300 FAULT ISOLATION MANUAL

D. Fault Isolation Procedure



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED IN ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed in all the landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE LANDING GEAR DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) If the door safety pins are not installed, do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the right hydraulic truck tilt pressure transducer, M29211. These are the tasks:
 - Main Landing Gear Truck Tilt Pressure Transducer - Removal, AMM TASK 32-32-22-000-801
 - Main Landing Gear Truck Tilt Pressure Transducer - Installation, AMM TASK 32-32-22-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Control, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 4) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 5) If the maintenance message shows on the ground test display, then continue.
 - 6) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (4) Do a check of the right truck tilt pressure:
 - (a) Make sure the control lever for the landing gear is in the DN position.
 - (b) Do this task: Supply Electrical Power, AMM TASK 24-22-00-860-805.
 - (c) Show the LANDING GEAR ACTN/INDN maintenance page on the right inboard display unit (AMM TASK 31-61-00-800-804).

NOTE: Use one of the control display units (CDUs) in the flight compartment to show the LANDING GEAR ACTN/INDN maintenance page.
 - (d) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.



777-200/300 FAULT ISOLATION MANUAL

- (e) If the right TRUCK TILT indication on the LANDING GEAR ACTN/INDN maintenance page is not between 2750 and 3050 psig, then examine these components for external and internal hydraulic fluid leaks:

NOTE: You can possibly find internal leaks by examining the component for a warm temperature or by listening for the sound of leaking hydraulic fluid. A stethoscope with a probe attachment can help you hear the sound of internal leaks.

- 1) Examine the hydraulic tubes or hoses for leaks.
- 2) If there is a leak, do the steps that follow.
 - a) Repair the hydraulic tubes or hoses for leaks.
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - f) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- 3) If there is no leak, then continue.
- 4) Examine right truck positioner actuator hydraulic fuses for leaks.

NOTE: Listen for fluid bypassing and touch to see if warm.

- 5) If there is a leak, do the steps that follow.
 - a) Replace the applicable truck positioner actuator hydraulic fuse. These are the tasks:
 - Main Landing Gear Hydraulic Fuses Removal, AMM TASK 32-32-19-020-801
 - Main Landing Gear Hydraulic Fuses Installation, AMM TASK 32-32-19-420-801
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- 6) If there is no leak, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK 904

D633W103-ARO

Page 298.250
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 7) For airplanes with horizontal side brace downlock actuators and springs, examine the right side brace downlock actuator trunion mount swivel for leaks.

NOTE: Listen for fluid bypassing and touch to see if warm.

- 8) If there is a leak, do the steps that follow:
- Replace the right side brace downlock actuator trunion mount swivel. These are the tasks:
 - Main Landing Gear Side Brace Downlock Actuator Trunion Mount Swivel Removal, AMM TASK 32-32-04-020-807-002
 - Main Landing Gear Side Brace Downlock Actuator Trunion Mount Swivel Installation, AMM TASK 32-32-04-420-807-002
 - Do this ground test on the MAT:
 - 27-Primary Flight Control, System Test, Speedbrake System.

<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- 9) If there is no leak, then continue.
- 10) Examine right side brace downlock actuator for leaks.
- NOTE: Listen for fluid bypassing and touch to see if warm.
- 11) If there is a leak, do the steps that follow.
- Replace the right side brace downlock actuator. These are the tasks:
 - Main Landing Gear Side Brace Downlock Actuator Removal, AMM TASK 32-32-04-020-804-002
 - Main Landing Gear Side Brace Downlock Actuator Installation, AMM TASK 32-32-04-420-804-002
 - Do this ground test on the MAT:
 - 27-Primary Flight Control, System Test, Speedbrake System.

<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

EFFECTIVITY
ARO ALL

27-02 TASK 904

D633W103-ARO

Page 298.251
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 12) If there is no leak, then continue.
- 13) For airplanes with horizontal drag brace downlock actuators and springs, examine the right drag brace downlock actuator trunion mount swivel for leaks.

NOTE: Listen for fluid bypassing and touch to see if warm.

- 14) If there is a leak, do the steps that follow:
 - a) Replace the right drag brace downlock actuator trunion mount swivel. These are the tasks:
 - Main Landing Gear Drag Brace Downlock Actuator Trunnion Mount Swivel Removal, AMM TASK 32-32-05-020-805-002
 - Main Landing Gear Drag Brace Downlock Actuator Trunnion Mount Swivel Installation, AMM TASK 32-32-05-420-805-002
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- 15) If there is no leak, then continue.
- 16) Examine right drag brace downlock actuator for leaks.

NOTE: Listen for fluid bypassing and touch to see if warm.

- 17) If there is a leak, do the steps that follow:
 - a) Replace the right drag brace downlock actuator. These are the tasks:
 - Main Landing Gear Drag Brace Downlock Actuator Removal, AMM TASK 32-32-05-020-804-002
 - Main Landing Gear Drag Brace Downlock Actuator Installation, AMM TASK 32-32-05-420-804-002
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 904

D633W103-ARO

Page 298.252
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- 18) If there is no leak, then continue.
- 19) Do the steps that follow for the truck positioner actuator hydraulic fuses:
 - a) Replace the truck positioner actuator hydraulic fuses. These are the tasks:
 - Main Landing Gear Hydraulic Fuses Removal, AMM TASK 32-32-19-020-801
 - Main Landing Gear Hydraulic Fuses Installation, AMM TASK 32-32-19-420-801
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - h) If the maintenance message shows on the ground test display, then continue.
- 20) Do the steps that follow for the right side brace downlock actuator trunion mount swivel:
 - a) Replace the right side brace downlock actuator trunion mount swivel. These are the tasks:
 - Main Landing Gear Side Brace Downlock Actuator Trunnion Mount Swivel Removal, AMM TASK 32-32-04-020-807-002
 - Main Landing Gear Side Brace Downlock Actuator Trunnion Mount Swivel Installation, AMM TASK 32-32-04-420-807-002
 - b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - h) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK 904

D633W103-ARO

Page 298.253
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 21) Do the steps that follow for the right drag brace downlock actuator trunion mount swivel:
- Replace the right drag brace downlock actuator trunion mount swivel. These are the tasks:
 - Main Landing Gear Drag Brace Downlock Actuator Trunnion Mount Swivel Removal, AMM TASK 32-32-05-020-805-002
 - Main Landing Gear Drag Brace Downlock Actuator Trunnion Mount Swivel Installation, AMM TASK 32-32-05-420-805-002
 - Do this ground test on the MAT:
 - 27-Primary Flight Control, System Test, Speedbrake System.
<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - If the maintenance message shows on the ground test display, then continue.
- 22) Do the steps that follow for the right side brace downlock actuator:
- Replace the right side brace downlock actuator. These are the tasks:
 - Main Landing Gear Side Brace Downlock Actuator Removal, AMM TASK 32-32-04-020-804-002
 - Main Landing Gear Side Brace Downlock Actuator Installation, AMM TASK 32-32-04-420-804-002
 - Do this ground test on the MAT:
 - 27-Primary Flight Control, System Test, Speedbrake System.
<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - If the maintenance message shows on the ground test display, then continue.
- 23) Do the steps that follow for the right drag brace downlock actuator:
- Replace the right drag brace downlock actuator: These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASK 904

D633W103-ARO

Page 298.254
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Main Landing Gear Drag Brace Downlock Actuator Removal, AMM TASK 32-32-05-020-804-002
 - Main Landing Gear Drag Brace Downlock Actuator Installation, AMM TASK 32-32-05-420-804-002
- b) Do this ground test on the MAT:
 - c) 27-Primary Flight Control, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - g) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - h) If the maintenance message shows on the ground test display, then continue.
- (f) If the right TRUCK TILT indication on the LANDING GEAR ACTN/INDN maintenance page is between 2750 and 3050 or if it does not show, then continue.
- (5) Replace the right hydraulic interface module (HYDIM) card in the right system card file, P84. These are the tasks:
 - Hydraulic Interface Module (HYDIM) Cards Removal, AMM TASK 29-11-50-000-801
 - Hydraulic Interface Module (HYDIM) Cards Installation, AMM TASK 29-11-50-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Control, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
 - (d) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (6) Do this check of the wiring:
 - (a) Remove the HYDIM-R card from the P84 card file. To remove it, do this task: Hydraulic Interface Module (HYDIM) Cards Removal, AMM TASK 29-11-50-000-801.
 - (b) Disconnect connector DM29211 from the right hydraulic truck tilt pressure transducer, M29211.
 - (c) Do a wiring check between these contacts of connector DM29211 (for the transducer) and the connector XA17 for the HYDIM-R (at the P84 card file) (SSM 29-11-22), (WDM 29-11-22):

EFFECTIVITY
ARO ALL

27-02 TASK 904

D633W103-ARO

Page 298.255
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM29211	XA17
pin 2	pin 73
pin 3	pin 71

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the HYDIM-R. To install it, do this task: Hydraulic Interface Module (HYDIM) Cards Installation, AMM TASK 29-11-50-400-801.
 - 3) Re-connect connector DM29211 to the transducer, M29211.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Control, System Test, Speedbrake System.
 <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - d) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - e) Remove center hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

E. Put the Airplane Back to Its Usual Condition



OBEY THE REMOVAL PROCEDURE FOR THE LANDING GEAR DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

————— END OF TASK —————

905. Primary Flight Computer (Left, Center, or Right) has an Internal Fault - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14030.

B. Initial Evaluation

NOTE: This maintenance message probably occurred because the PFCs were exchanged (swapped) when one of the PFCs had an internal fault. The PFCs cannot find which PFC has the problem.

- (1) Replace all three PFCs, M27106, M27206, M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

EFFECTIVITY
ARO ALL

27-02 TASKS 904-905

D633W103-ARO

Page 298.256
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT:

NOTE: This ground test unlatches the fault, but does not do a test of the system. This test will show FAILED the first time you do it.

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer Reset.

- (b) Do this ground test on the MAT a second time:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer Reset.
- 2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

906. Primary Flight Computer (Left) has an Internal Fault - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14031.

B. Fault Isolation Procedure

NOTE: Do not exchange the PFCs (change the location of the PFCs) to try to correct this fault. It will cause a new maintenance message.

- (1) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

- (a) Do this ground test on the MAT:

NOTE: This ground test unlatches the fault, but does not do a test of the system. This test will show FAILED the first time you do it.

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer Reset.

- (b) Do this ground test on the MAT a second time:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer Reset.
- 2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

907. Primary Flight Computer (Center) has an Internal Fault - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14032.

B. Fault Isolation Procedure

NOTE: Do not exchange the PFCs (change the location of the PFCs) to try to correct this fault. It will cause a new maintenance message.

- (1) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

- (a) Do this ground test on the MAT:

NOTE: This ground test unlatches the fault, but does not do a test of the system. This test will show FAILED the first time you do it.

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS 905-907

D633W103-ARO

Page 298.257
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Do this ground test on the MAT a second time:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer Reset.
 - 2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

908. Primary Flight Computer (right) has an Internal Fault - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14033.

B. Fault Isolation Procedure

NOTE: Do not exchange the PFCs (change the location of the PFCs) to try to correct this fault. It will cause a new maintenance message.

- (1) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:

NOTE: This ground test unlatches the fault, but does not do a test of the system. This test will show FAILED the first time you do it.

 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer Reset.
- (b) Do this ground test on the MAT a second time:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer Reset.
 - 2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

909. ACE-L1 Direct Mode Signals on ARINC 629-R Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17003.

B. Initial Evaluation

- (1) Set the primary flight controls (PFC) DISC switch to the NORM position and wait 1.5 minutes.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASKS 907-909

D633W103-ARO

Page 298.258
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
- (a) Remove the IOM(M008) and IOM(M009) modules in the right AIMS cabinet. To remove them, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27121AB (for ACE-L1) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-07):

DM27121AB	J410-A	J420-A
pin J1	pin C1	pin C1
pin K1	GROUND	GROUND

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IOM(M008) and IOM(M009) modules in the right AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-02 TASK 909

D633W103-ARO

Page 298.259
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- 6) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
- a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M008) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (a) Re-install the IOM(M009) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (d) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
- 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M009) module in the right AIMS cabinet. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASK 909

D633W103-ARO

Page 298.260
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
- Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— END OF TASK —————

910. ACE-L2 Direct Mode Signals on ARINC 629-L Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17004.

B. Initial Evaluation

- (1) Set the primary flight controls (PFC) DISC switch to the NORM position and wait 1.5 minutes.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
 - (a) Remove the IOM(M008) and IOM(M009) modules in the left AIMS cabinet, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR

EFFECTIVITY
ARO ALL

27-02 TASKS 909-910

D633W103-ARO

Page 298.261
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Remove the ACE-L2, M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27122AB (for ACE-L2) and the connectors for two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-04):
- (e) Do a wiring check between these contacts of connector DM27121AB (for ACE-L1) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-07):

DM27121AB	P8-B	P9-B
pin K3	pin E5	pin E5
pin J3	pin A1	pin A1

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IOM(M008) and IOM(M009) modules in the left AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- 6) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (g) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK 910

D633W103-ARO

Page 298.262
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Install a new IOM(M008) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (a) Re-install the IOM(M009) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (d) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M009) module in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— END OF TASK —————

911. ACE-L2 Direct Mode Signals on ARINC 629-R Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17005.

B. Initial Evaluation

- (1) Set the primary flight controls (PFC) DISC switch to the NORM position and wait 1.5 minutes.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS 910-911

D633W103-ARO

Page 298.263
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
 - (a) Remove the IOM(M008) and IOM(M009) modules in the right AIMS cabinet. To remove them, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Remove the ACE-L2, M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27122AB (for ACE-L2) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-07):

DM27122AB	P8-B	P9-B
pin J1	pin E5	pin E5
pin K1	pin A1	pin A1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IOM(M008) and IOM(M009) modules in the right AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-02 TASK 911

D633W103-ARO

Page 298.264
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- 6) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
- a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M008) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (a) Re-install the IOM(M009) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (b) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (c) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (d) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
- 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M009) module in the right AIMS cabinet. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.

EFFECTIVITY
ARO ALL

27-02 TASK 911

D633W103-ARO

Page 298.265
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— END OF TASK —————

912. ACE-C Direct Mode Signals on ARINC 629-L Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17006.

B. Initial Evaluation

- (1) Set the primary flight controls (PFC) DISC switch to the NORM position and wait 1.5 minutes.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
 - (a) Remove the IOM(M003) and IOM(M004) modules in the left AIMS cabinet, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E1-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU

EFFECTIVITY
ARO ALL

27-02 TASKS 911-912

D633W103-ARO

Page 298.266
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27321AB (for ACE-C) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-05):

DM27321AB	J240-A	J250-A
pin J3	GROUND	GROUND
pin K3	pin C1	pin C1

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the IOM(M003) and IOM(M004) modules in the left AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
 - 6) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M003) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.

EFFECTIVITY
ARO ALL

27-02 TASK 912

D633W103-ARO

Page 298.267
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Re-install the IOM(M004) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (b) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (c) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (d) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M004) module in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— END OF TASK —————

913. ACE-C Direct Mode Signals on ARINC 629-R Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17007.

B. Initial Evaluation

- (1) Set the primary flight controls (PFC) DISC switch to the NORM position and wait 1.5 minutes.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS 912-913

D633W103-ARO

Page 298.268
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
 - (a) Remove the IOM(M003) and IOM(M004) modules in the right AIMS cabinet. To remove them, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Remove the ACE-C, M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27321AB (for ACE-C) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-08):

DM27321AB	J240-A	J250-A
pin J1	pin C1	C1
pin K1	GROUND	GROUND

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IOM(M003) and IOM(M004) modules in the right AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.

EFFECTIVITY
ARO ALL

27-02 TASK 913

D633W103-ARO

Page 298.269
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- 6) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M003) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (a) Re-install the IOM(M004) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (d) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M004) module in the right AIMS cabinet. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASK 913

D633W103-ARO

Page 298.270
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
- Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— END OF TASK —————

914. ACE-R Direct Mode Signals on ARINC 629-L Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17008.

B. Initial Evaluation

- (1) Set the primary flight controls (PFC) DISC switch to the NORM position and wait 1.5 minutes.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
 - (a) Remove the IOM(M003) and IOM(M004) modules in the left AIMS cabinet, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.

EFFECTIVITY
ARO ALL

27-02 TASKS 913-914

D633W103-ARO

Page 298.271
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Remove the ACE-R, M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27221AB (for ACE-R) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-05):

DM27221AB	P3-B	P4-B
pin J3	pin A1	pin A1
pin K3	pin E5	pin E5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the IOM(M003) and IOM(M004) modules in the left AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
 - 6) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK 914

D633W103-ARO

Page 298.272
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Install a new IOM(M003) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (a) Re-install the IOM(M004) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (d) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M004) module in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— END OF TASK —————

915. ACE-R Direct Mode Signals on ARINC 629-R Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17009.

B. Initial Evaluation

- (1) Set the primary flight controls (PFC) DISC switch to the NORM position and wait 1.5 minutes.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.

EFFECTIVITY
ARO ALL

27-02 TASKS 914-915

D633W103-ARO

Page 298.273
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
 - (a) Remove the IOM(M003) and IOM(M004) modules in the right AIMS cabinet. To remove them, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Remove the ACE-R, M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27221AB (for ACE-R) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-08):

DM27221AB	J240-A	J250-A
pin J1	pin D9	pin D9
pin K1	GROUND	GROUND

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-02 TASK 915

D633W103-ARO

Page 298.274
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install the IOM(M003) and IOM(M004) modules in the right AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- 6) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M003) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (a) Re-install the IOM(M004) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (d) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 915

D633W103-ARO

Page 298.275
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M004) module in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Set the PFC DISC switch to the NORM position and wait 1.5 minutes.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then set the PFC DISC switch to the DISC position and wait 1.5 minutes.
- 1) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

END OF TASK

916. Primary Flight Computers are in Test Mode - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17900.

B. Fault Isolation Procedure

- (1) Look at the MAT, and the maintenance device, SPL-5704, to see if TEST CONDITION: OPERATING shows. For instructions on how to use the MAT, do this task: How to Use the Central Maintenance Computing System, AMM TASK 45-10-00-740-808
- (2) If the MAT (or maintenance device, SPL-5704) shows TEST CONDITION: OPERATING, then do one of these two steps:
 - (a) Wait until the MAT completes the test.
NOTE: Some tests require you to do things to the airplane before the MAT can complete the test. These tests will give you instructions that will show on the MAT.
 - (b) Select STOP TEST on the MAT.
- (3) If the MAT (or maintenance device, SPL-5704) does not show TEST CONDITION: OPERATING, then do these steps:
 - (a) Open these circuit breakers on the PSA-L, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

- (b) Open these circuit breakers on the PSA-C, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

EFFECTIVITY
ARO ALL

27-02 TASKS 915-916

D633W103-ARO

Page 298.276
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Open these circuit breakers on the PSA-R, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- (d) Close these circuit breakers:

- 1) On the PSA-R, on the E5-1 shelf:

NOTE: We recommend that you close the three PFC, LANE circuit breakers at the same time.

- a) D2, LANE 1
- b) D4, LANE 2
- c) D6, LANE 3
- d) D8, BAT INTLK

- 2) On the PSA-C, on the E2-6 shelf:

NOTE: We recommend that you close the three PFC LANE circuit breakers at the same time.

- a) D2, LANE 1
- b) D4, LANE 2
- c) D6, LANE 3
- d) D8, BAT INTLK

- 3) On the PSA-L, on the E1-6 shelf:

NOTE: We recommend that you close the three PFC, LANE circuit breakers at the same time.

- a) D2, LANE 1
- b) D4, LANE 2
- c) D6, LANE 3
- d) D8, BAT INTLK

————— **END OF TASK** —————

917. Radio Altitude Transceiver (Left) Test Inhibit Signals Command Problems - Fault Isolation

A. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 916-917

D633W103-ARO

Page 298.277
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Fault Isolation Procedure

- (1) Replace the left radio altimeter (RA) transceiver, M34112. These are the tasks:
 - Radio Altimeter Transceiver Removal, AMM TASK 34-33-01-000-801
 - Radio Altimeter Transceiver Installation, AMM TASK 34-33-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the test inhibit command wiring from the left AIMS cabinet:
 - (a) Remove the IOM(M003) from the left AIMS cabinet. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Remove the IOM(M004) from the left AIMS cabinet. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (c) Remove the left RA transceiver, M34112. To remove it, do this task: Radio Altimeter Transceiver Removal, AMM TASK 34-33-01-000-801.
 - (d) Do a check of the wiring between these pins of connector DM34112AB at the E5-4 shelf and connector P3-B at the left AIMS cabinet (WDM 34-33-11) (WDM 31-41-93):

DM34112AB	J240-B
pin K6	pin C5
 - (e) Do a check of the wiring between these pins of connector DM34112AB at the E5-4 shelf and connector P4-B at the left AIMS cabinet (WDM 34-33-11) (WDM 31-41-93):

DM34112AB	J250-B
pin K6	pin C5
 - (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IOM(M003) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the IOM(M004) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 4) Re-install the left RA transceiver, M34112. To install it, do this task: Radio Altimeter Transceiver Installation, AMM TASK 34-33-01-400-801.
 - 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If you do not find a problem with the wiring, then continue.
 - (h) Re-install the IOM(M003) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.

EFFECTIVITY
ARO ALL

27-02 TASK 917

D633W103-ARO

Page 298.278
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (i) Re-install the IOM(M004) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (3) Do this check of the test inhibit command wiring from the right AIMS cabinet:
 - (a) Remove the IOM(M003) from the right AIMS cabinet. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Remove the IOM(M004) from the right AIMS cabinet. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (c) Do a check of the wiring between these pins of connector DM34112AB at the E5-4 shelf and connector P3-B at the right AIMS cabinet (WDM 34-33-11) (WDM 31-41-97):

DM34112AB	J240-B
pin K6	pin C5
 - (d) Do a check of the wiring between these pins of connector DM34112AB at the E5-4 shelf and connector P4-B at the right AIMS cabinet (WDM 34-33-11) (WDM 31-41-97):

DM34112AB	J250-B
pin K6	pin C5
 - (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IOM(M003) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the IOM(M004) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 4) Re-install the left RA transceiver, M34112. To install it, do this task: Radio Altimeter Transceiver Installation, AMM TASK 34-33-01-400-801.
 - 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (f) If you do not find a problem with the wiring, then continue.
 - (g) Re-install the IOM(M003) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (h) Re-install the IOM(M004) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (4) Replace the #3 IOM (M004) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 917

D633W103-ARO

Page 298.279
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the #4 IOM (M003) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the #3 IOM (M004) in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the #4 IOM (M003) in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

918. Radio Altitude Transceiver (Right) Test Inhibit Signals Command Problems - Fault Isolation

A. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 917-918

D633W103-ARO

Page 298.280
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Fault Isolation Procedure

- (1) Replace the right radio altimeter (RA) transceiver, M34212. These are the tasks:
 - Radio Altimeter Transceiver Removal, AMM TASK 34-33-01-000-801
 - Radio Altimeter Transceiver Installation, AMM TASK 34-33-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the test inhibit command wiring from the left AIMS cabinet:
 - (a) Remove the IOM(M003) from the left AIMS cabinet. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Remove the IOM(M004) from the left AIMS cabinet. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (c) Remove the right RA transceiver, M34212. To remove it, do this task: Radio Altimeter Transceiver Removal, AMM TASK 34-33-01-000-801.
 - (d) Do a check of the wiring between these pins of connector DM34212AB at the E5-2 shelf and connector P3-B at the left AIMS cabinet (WDM 34-33-21) (WDM 31-41-93):

DM34212AB	J240-B
pin K6	pin C5
 - (e) Do a check of the wiring between these pins of connector DM34212AB at the E5-2 shelf and connector P4-B at the left AIMS cabinet (WDM 34-33-21) (WDM 31-41-93):

DM34212AB	J250-B
pin K6	pin C5
 - (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IOM(M003) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the IOM(M004) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 4) Re-install the right RA transceiver, M34212. To install it, do this task: Radio Altimeter Transceiver Installation, AMM TASK 34-33-01-400-801.
 - 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If you do not find a problem with the wiring, then continue.
 - (h) Re-install the IOM(M003) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.

EFFECTIVITY
ARO ALL

27-02 TASK 918

D633W103-ARO

Page 298.281
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (i) Re-install the IOM(M004) in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (3) Do this check of the test inhibit command wiring from the right AIMS cabinet:
 - (a) Remove the IOM(M003) from the right AIMS cabinet. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Remove the IOM(M004) from the right AIMS cabinet. To remove it, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (c) Do a check of the wiring between these pins of connector DM34212AB at the E5-2 shelf and connector P3-B at the right AIMS cabinet (WDM 34-33-21) (WDM 31-41-97):

DM34212AB	J240-B
pin K6	pin C5
 - (d) Do a check of the wiring between these pins of connector DM34212AB at the E5-2 shelf and connector P4-B at the right AIMS cabinet (WDM 34-33-21) (WDM 31-41-97):

DM34212AB	J250-B
pin K6	pin C5
 - (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IOM(M003) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the IOM(M004) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 4) Re-install the right RA transceiver, M34212. To install it, do this task: Radio Altimeter Transceiver Installation, AMM TASK 34-33-01-400-801.
 - 5) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (f) If you do not find a problem with the wiring, then continue.
 - (g) Re-install the IOM(M003) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (h) Re-install the IOM(M004) in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (4) Replace the #3 IOM (M004) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 918

D633W103-ARO

Page 298.282
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the #4 IOM (M003) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the #3 IOM (M004) in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the #4 IOM (M003) in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Radio Altimeter Test Inhibit to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

919. PFC (Center) To Flight Controls 629 Bus Communication Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-18822.

B. Initial Evaluation

NOTE: This maintenance message can be reported by a PSA, AFDC, ADIRU, ADM, SAARU, or AIMS. If one of these LRUs has invalid or intermittent communication with the PFC's, the PFC's can invalidate the wordstrings to that LRU. These maintenance messages can sometimes be caused by power interrupts at engine start or ground maintenance actions. If the fault does not clear by running the PFC Transmitter Reset ground test in the Initial Evaluation, troubleshoot the maintenance messages associated with the reporting system before replacing the PFC in the fault Isolation Procedure.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS 918-919

D633W103-ARO

Page 298.283
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the center PFC, M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

920. PFC (Right) To Flight Controls 629 Bus Communication Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-18833.

B. Initial Evaluation

NOTE: This maintenance message can be reported by a PSA, AFDC, ADIRU, ADM, SAARU, or AIMS. If one of these LRUs has invalid or intermittent communication with the PFC's, the PFC's can invalidate the wordstrings to that LRU. These maintenance messages can sometimes be caused by power interrupts at engine start or ground maintenance actions. If the fault does not clear by running the PFC Transmitter Reset ground test in the Initial Evaluation, troubleshoot the maintenance messages associated with the reporting system before replacing the PFC in the fault Isolation Procedure.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the right PFC, M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS 919-920

D633W103-ARO

Page 298.284
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

921. Warning Electronic System (Right Channel 2) Signals Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-19270, 27-19390, 27-19870.

B. Initial Evaluation

NOTE: An FSEU (flap/slat electronic unit) fault can cause these Warning Electronic System maintenance messages.

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT for one or more of these maintenance messages:

- 27-13032
- 27-13033
- 27-13034
- 27-13035
- 27-13036
- 27-13037
- 27-13038
- 27-13039
- 27-13040
- 27-18510
- 27-18550
- 27-18560

- (a) If you find one or more of the maintenance messages given in the list above, then do these steps:

- 1) Find the message in the FIM Maintenance Message Index.
- 2) Do the specified fault isolation task.
- 3) Open and then close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.

EFFECTIVITY
ARO ALL

27-02 TASKS 920-921

D633W103-ARO

Page 298.285
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If you do not find one of the maintenance messages given in the list above, then continue.
- (2) Open all of these circuit breakers. After they are all open, then close them:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

- (3) Do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the right warning electronic unit (WEU), M31207. These are the tasks:
- Warning Electronic Unit Removal, AMM TASK 31-51-01-000-801
 - Warning Electronic Unit Installation, AMM TASK 31-51-01-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the flap/slat electronics unit (FSEU) 2, M27002. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASK 921

D633W103-ARO

Page 298.286
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the #3 IOM (M004) in the right AIMS. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the secondary attitude air data reference unit (SAARU), M34002. These are the tasks:
- Secondary Attitude Air Data Reference Unit Removal, AMM TASK 34-21-02-000-801
 - Secondary Attitude Air Data Reference Unit Installation, AMM TASK 34-21-02-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

922. Warning Electronic System (Right Channel 1) Signals Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-19280, 27-19430, 27-19910.

B. Initial Evaluation

NOTE: An FSEU (flap/slat electronic unit) fault can cause these Warning Electronic System maintenance messages.

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT for one or more of these maintenance messages:
- 27-13032
 - 27-13033
 - 27-13034
 - 27-13035
 - 27-13036
 - 27-13037
 - 27-13038
 - 27-13039
 - 27-13040
 - 27-18510

EFFECTIVITY
ARO ALL

27-02 TASKS 921-922

D633W103-ARO

Page 298.287
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 27-18550
- 27-18560
- (a) If you find one or more of the maintenance messages given in the list above, then do these steps:
 - 1) Find the message in the FIM Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - 3) Open and then close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
- (b) If you do not find one of the maintenance messages given in the list above, then continue.
- (2) Open all of these circuit breakers. After they are all open, then close them:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

- (3) Do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the right warning electronic unit (WEU), M31207. These are the tasks:
 - Warning Electronic Unit Removal, AMM TASK 31-51-01-000-801
 - Warning Electronic Unit Installation, AMM TASK 31-51-01-400-801
- (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASK 922

D633W103-ARO

Page 298.288
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the flap/slat electronics unit (FSEU) 2, M27002. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the #2 IOM (M008) in the right AIMS. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the air data inertial reference unit (ADIRU), M34001. These are the tasks:
- Air Data Inertial Reference Unit - Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-02 TASK 922

D633W103-ARO

Page 298.289
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

923. Warning Electronic System (Left Channel 2) Signals Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-19350, 27-19830, 27-19950.

B. Initial Evaluation

NOTE: An FSEU (flap/slat electronic unit) fault can cause these Warning Electronic System maintenance messages.

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT for one or more of these maintenance messages:

- 27-13032
- 27-13033
- 27-13034
- 27-13035
- 27-13036
- 27-13037
- 27-13038
- 27-13039
- 27-13040
- 27-18510
- 27-18550
- 27-18560

- (a) If you find one or more of the maintenance messages given in the list above, then do these steps:

- 1) Find the message in the FIM Maintenance Message Index.
- 2) Do the specified fault isolation task.
- 3) Open and then close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
- (b) If you do not find one of the maintenance messages given in the list above, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK 923

D633W103-ARO

Page 298.290
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) Open all of these circuit breakers. After they are all open, then close them:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

- (3) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the left warning electronic unit (WEU), M31107. These are the tasks:
- Warning Electronic Unit Removal, AMM TASK 31-51-01-000-801
 - Warning Electronic Unit Installation, AMM TASK 31-51-01-400-801
- (a) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (2) Replace the flap/slat electronics unit (FSEU) 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (3) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.

EFFECTIVITY
ARO ALL

27-02 TASK 923

D633W103-ARO

Page 298.291
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the #2 IOM (M008) in the left AIMS. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the secondary attitude air data reference unit (SAARU), M34002. These are the tasks:
 - Secondary Attitude Air Data Reference Unit Removal, AMM TASK 34-21-02-000-801
 - Secondary Attitude Air Data Reference Unit Installation, AMM TASK 34-21-02-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

924. Warning Electronic System (Right) Signals Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19240.

B. Initial Evaluation

NOTE: An FSEU (flap/slat electronic unit) fault can cause these Warning Electronic System maintenance messages.

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT for one or more of these maintenance messages:
 - 27-13032
 - 27-13033
 - 27-13034
 - 27-13035
 - 27-13036
 - 27-13037
 - 27-13038
 - 27-13039
 - 27-13040
 - 27-18510
 - 27-18550

EFFECTIVITY
ARO ALL

27-02 TASKS 923-924

D633W103-ARO

Page 298.292
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 27-18560

(a) If you find one or more of the maintenance messages given in the list above, then do these steps:

- 1) Find the message in the FIM Maintenance Message Index.
- 2) Do the specified fault isolation task.
- 3) Open and then close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

4) Do this ground test on the MAT:

- a) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.

(b) If you do not find one of the maintenance messages given in the list above, then continue.

(2) Open all of these circuit breakers. After they are all open, then close them:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

(3) Do this ground test on the MAT:

- a) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
- b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

(1) Replace the right warning electronic unit (WEU), M31207. These are the tasks:

- Warning Electronic Unit Removal, AMM TASK 31-51-01-000-801
- Warning Electronic Unit Installation, AMM TASK 31-51-01-400-801

(a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASK 924

D633W103-ARO

Page 298.293
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the flap/slat electronics unit (FSEU) 2, M27002. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the PFC-C, M27306. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the #2 IOM (M008) in the right AIMS. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the #3 IOM(M004) in the right AIMS. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASK 924

D633W103-ARO

Page 298.294
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
- Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the Secondary Attitude Air Data Reference Unit (SAARU), M34002. These are the tasks:
 - Secondary Attitude Air Data Reference Unit Removal, AMM TASK 34-21-02-000-801
 - Secondary Attitude Air Data Reference Unit Installation, AMM TASK 34-21-02-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the air data inertial reference unit (ADIRU), M34001. These are the tasks:
 - Air Data Inertial Reference Unit - Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Warning Electronic System to PFC Interface.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

925. PFC-C Lane 1 Transmit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14009.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 924-925

D633W103-ARO

Page 298.295
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the ground test display, then continue.

- (2) Replace the ARINC 629 coupler, B27073, in the P312 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the PFC-C to the FLT CTRL 629 BUS-C.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the ground test display, then continue.

- (3) Do this check of the wiring from the PFC-C to the coupler:

- (a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, and install DO-NOT-CLOSE tags:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- (c) Remove the PFC-C, M27306, from the E2-6 shelf. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (d) Disconnect connector DB27073 from the ARINC 629 coupler, B27073.
- (e) Do a wiring check between these pins of connector DM27306AA for the PFC-C and connector DB27073 at the ARINC 629 coupler, B27073 (WDM 27-02-45):

EFFECTIVITY
ARO ALL

27-02 TASK 925

D633W103-ARO

Page 298.296
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27306AA B27073

pin 3T	.....	pin 5
pin 3TR	.....	pin 4
pin 6T	.....	pin 2
pin 6TR	.....	pin 1

- (f) If you find a problem with the wiring, then do these steps:
- 1) Replace the wiring.
 - 2) Re-connect connector DB27073 to the ARINC 629 coupler.
 - 3) Re-install the PFC-C, M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- 6) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

926. PFC-C Lane 2 Transmit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14010.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS 925-926

D633W103-ARO

Page 298.297
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the ground test display, then continue.

- (2) Replace the ARINC 629 coupler, B27083, in the P312 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the PFC-C to the FLT CTRL 629 BUS-C.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the ground test display, then continue.

- (3) Do this check of the wiring from the PFC-C to the coupler:

- (a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, and install DO-NOT-CLOSE tags:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- (c) Remove the PFC-C, M27306, from the E2-6 shelf. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (d) Disconnect connector DB27073 from the ARINC 629 coupler, B27083.
- (e) Do a wiring check between these pins of connector DM27306AA for the PFC-C and connector DB27083 at the ARINC 629 coupler, B27083 (WDM 27-02-45):

EFFECTIVITY
ARO ALL

27-02 TASK 926

D633W103-ARO

Page 298.298
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27306AA

pin 9T pin 5
pin 9TR pin 4
pin 10T pin 2
pin 10TR pin 1

B27083

- (f) If you find a problem with the wiring, then do these steps:

- 1) Replace the wiring.
- 2) Re-connect connector DB27083 to the ARINC 629 coupler.
- 3) Re-install the PFC-C, M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- 6) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

927. PFC-C Lane 3 Transmit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14011.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS 926-927

D633W103-ARO

Page 298.299
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the ground test display, then continue.

- (2) Replace the ARINC 629 coupler, B27093, in the P312 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the PFC-C to the FLT CTRL 629 BUS-C.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the ground test display, then continue.

- (3) Do this check of the wiring from the PFC-C to the coupler:

- (a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, and install DO-NOT-CLOSE tags:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- (c) Remove the PFC-C, M27306, from the E2-6 shelf. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (d) Disconnect connector DB27093 from the ARINC 629 coupler, B27093.
- (e) Do a wiring check between these pins of connector DM27306AA for the PFC-C and connector DB27093 at the ARINC 629 coupler, B27093 (WDM 27-02-45):

EFFECTIVITY
ARO ALL

27-02 TASK 927

D633W103-ARO

Page 298.300
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27306AA B27093

pin 8T	.....	pin 5
pin 8TR	.....	pin 4
pin 7T	.....	pin 2
pin 7TR	.....	pin 1

- (f) If you find a problem with the wiring, then do these steps:
- 1) Replace the wiring.
 - 2) Re-connect connector DB27093 to the ARINC 629 coupler.
 - 3) Re-install the PFC-C, M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- 6) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

928. PFC-R Lane 1 Transmit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14015.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS 927-928

D633W103-ARO

Page 298.301
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the ARINC 629 coupler, B27042, in the P212 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the PFC-R to the FLT CTRL 629 BUS-R.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the wiring from the PFC-R to the coupler:
- (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, and install DO-NOT-CLOSE tags:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- (c) Remove the PFC-R, M27206, from the E16-1 shelf. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (d) Disconnect connector DB27042 from the ARINC 629 coupler, B27042.
- (e) Do a wiring check between these pins of connector DM27206AA for the PFC-R and connector DB27042 at the ARINC 629 coupler, B27042 (WDM 27-02-43):

EFFECTIVITY
ARO ALL

27-02 TASK 928

D633W103-ARO

Page 298.302
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27206AA B27042

pin 3T	.....	pin 5
pin 3TR	.....	pin 4
pin 6T	.....	pin 2
pin 6TR	.....	pin 1

- (f) If you find a problem with the wiring, then do these steps:
- 1) Replace the wiring.
 - 2) Re-connect connector DB27042 to the ARINC 629 coupler.
 - 3) Re-install the PFC-R, M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- 5) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- 6) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

929. PFC-R Lane 2 Transmit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14016.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS 928-929

D633W103-ARO

Page 298.303
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the ARINC 629 coupler, B27052, in the P212 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the PFC-R to the FLT CTRL 629 BUS-R.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the wiring from the PFC-R to the coupler:
- (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, and install DO-NOT-CLOSE tags:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- (c) Remove the PFC-R, M27206, from the E16-1 shelf. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (d) Disconnect connector DB27052 from the ARINC 629 coupler, B27052.
- (e) Do a wiring check between these pins of connector DM27206AA for the PFC-R and connector DB27052 at the ARINC 629 coupler, B27052 (WDM 27-02-43):

EFFECTIVITY
ARO ALL

27-02 TASK 929

D633W103-ARO

Page 298.304
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27206AA B27052

pin 9T	pin 5
pin 9TR	pin 4
pin 10T	pin 2
pin 10TR	pin 1

- (f) If you find a problem with the wiring, then do these steps:
- 1) Replace the wiring.
 - 2) Re-connect connector DB27052 to the ARINC 629 coupler.
 - 3) Re-install the PFC-R, M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- 5) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

Row	Col	Number	Name
P	3	C24672	R PSA TRU PWR

- 6) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

930. PFC-R Lane 3 Transmit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14017.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS 929-930

D633W103-ARO

Page 298.305
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the ARINC 629 coupler, B27062, in the P212 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the PFC-R to the FLT CTRL 629 BUS-R.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the wiring from the PFC-R to the coupler:
- (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, and install DO-NOT-CLOSE tags:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- (c) Remove the PFC-R, M27206, from the E16-1 shelf. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (d) Disconnect connector DB27062 from the ARINC 629 coupler, B27062.
- (e) Do a wiring check between these pins of connector DM27206AA for the PFC-R and connector DB27062 at the ARINC 629 coupler, B27062 (WDM 27-02-43):

EFFECTIVITY
ARO ALL

27-02 TASK 930

D633W103-ARO

Page 298.306
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27206AA	B27062
pin 8T	pin 5
pin 8TR	pin 4
pin 7T	pin 2
pin 7TR	pin 1

- (f) If you find a problem with the wiring, then do these steps:
- 1) Replace the wiring.
 - 2) Re-connect connector DB27062 to the ARINC 629 coupler.
 - 3) Re-install the PFC-R, M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- 5) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- 6) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

931. Actuator Control Electronics (Left 1) Actuator Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13062.

B. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Confidence.

EFFECTIVITY
ARO ALL

27-02 TASKS 930-931

D633W103-ARO

Page 298.307
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

932. Actuator Control Electronics (Left 2) Actuator Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13063.

B. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Confidence.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

933. Actuator Control Electronics (Center) Actuator Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13064.

B. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Confidence.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

934. Actuator Control Electronics (Right) Actuator Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13065.

B. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS 931-934

D633W103-ARO

Page 298.308
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Confidence.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

935. **Primary Flight Computer (Center) Lane 1 Problems - Fault Isolation**

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLERS EVEN AFTER THE PFC HAS BEEN REPLACED.

NOTE: Avoid swapping PFCs if any of them contains a lane fault. The state machine inside the PFC that keeps track of lane faults can get confused and generate more lane faults or get into an unrecoverable state.

NOTE: If an intermittent lane fault continues to occur, the PFC will allow the lane fault to be cleared up to 10 times before it becomes permanently latched. This allows the operator 10 attempts to narrow down the cause of the lane fault. Once a lane fault is permanently latched, the PFC must be removed and sent to a repair shop to have the fault cleared. The following procedure is written to help the operator narrow down the cause of the lane fault and avoid getting to the point where the fault is permanently latched.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14006.

B. Description

- (1) The Center Primary Flight Computer (PFC-C) Lane 1 has an internal or interface fault.

C. Possible Causes

- (1) Primary Flight Computer (Centert), M27306
- (2) Flight Controls ARINC 629 (L) Coupler in P112 (PFC-C), B27071
- (3) Flight Controls ARINC 629 (R) Coupler in P212 (PFC-C), B27072
- (4) Flight Controls ARINC 629 (C) Coupler in P312 (PFC-C), B27073
- (5) Wiring

D. Related Data

- (1) WDM 27-02-41
- (2) WDM 27-02-43
- (3) WDM 27-02-45
- (4) SWPM 20-11-11

E. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do this Ground Test on the MAT: Primary Flight Computer (C) Lane Reset, AMM TASK 27-02-01-740-801

NOTE: If the PFC Lane Reset was not successful, do the lane reset a second time.

EFFECTIVITY
ARO ALL

27-02 TASKS 934-935

D633W103-ARO

Page 298.309
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the second PFC Lane Reset was successful, swap the Center Primary Flight Computer (PFC-C), M27306 with the Left Primary Flight Computer (PFC-L), M27106. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- 1) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.
- a) If the maintenance message “27-14000 Primary Flight Computer (Left) lane 1 has an internal or interface fault” now shows, replace the Primary Flight Computer that was originally installed in the PFC-C, M27306 position (now in the PFC-L position). These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- b) If the maintenance message “27-14006 Primary Flight Computer (Center) lane 1 has an internal or interface fault” still shows, do the Fault Isolation Procedure below.
- (b) If the second PFC Lane Reset was not successful, the fault is latched and cannot be cleared on the airplane, replace the Center Primary Flight Computer (PFC-C), M27306. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

F. Fault Isolation Procedure

- (1) Swap the ARINC Couplers that follow (WDM 27-02-41, WDM 27-02-43 and WDM 27-02-45):
- Coupler B27071 (L FC BUS RCV) PFC-C LANE 1 with
 - Coupler B27041 (L FC BUS RCV) PFC-R LANE 1
 - Coupler B27072 (R FC BUS RCV) PFC-C LANE 1 with
 - Coupler B27053 (C FC BUS RCV) PFC-R LANE 2
 - Coupler B27073 (C FC BUS T/R) PFC-C LANE 1 with
 - Coupler B27062 (R FC BUS T/R) PFC-R LANE 3
- (2) These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801
- NOTE:** Swapping couplers can induce lane faults in the PFCs which would also need to be cleared by running the associated Primary Flight Computer (L, R, or C) Lane Reset Tests, AMM TASK 27-02-01-740-801.
- (a) Do the Repair Confirmation at the end of this task.
- (3) Monitor the airplane during subsequent flight(s) to see if the maintenance message shows again.
- (a) If the problem follows the coupler as shown in the table below, replace the applicable coupler. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 935

D633W103-ARO

Page 298.310
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DB Coupler - Original Position	DB Coupler - Swapped Position	Original Maintenance Message	New Maintenance Message after swap	Replace Defective Coupler (Currently in Swapped Position)
P112 (PFC-C), B27071	P112 (PFC-R), B27041	27-14006	27-14012	P112 (PFC-R), B27041
P212 (PFC-C), B27072	P312 (PFC-R), B27053	27-14006	27-14013	P312 (PFC-R), B27053
P312 (PFC-C), B27073	P212 (PFC-R), B27062	27-14006	27-14014	P212 (PFC-R), B27062

- (b) If the maintenance message “27-14006 Primary Flight Computer (center) lane 1 has an internal or interface fault” still shows in the PFC-R position, then continue.
- (4) Do these PFC-C to the 629 Coupler wire checks:

NOTE: Since it is not possible to determine which Stub Cable has the problem, it is recommended to examine ALL THREE Stub Cable Assemblies at the same time.

- (a) Open these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (b) Remove the PFC-C, M27306. This is the task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Disconnect connectors DB27071, DB27072 and DB27073 from these ARINC 629 Couplers:
- 1) B27071 Coupler in the P112 Panel (WDM 27-02-41)
 - 2) B27072 Coupler in the P212 Panel (WDM 27-02-43)
 - 3) B27073 Coupler in the P312 Panel (WDM 27-02-45)
- (d) Do a wiring check between these pins of connector DM27306AA or DM27306AC at the PFC-C and the 629 Coupler connectors indicated in the tables that follow:

PFC-C	B27071
DM27306AC	COUPLER
	DB27071
pin 1T	pin 5
pin 1TR	pin 4
pin 3T	pin 2
pin 3TR	pin 1

EFFECTIVITY
ARO ALL

27-02 TASK 935

D633W103-ARO

Page 298.311
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

PFC-C	B27072
DM27306AC	COUPLER
	DB27072
pin 5T	pin 5
pin 5TR	pin 4
pin 7T	pin 2
pin 7TR	pin 1

PFC-C	B27073
DM27306AA	COUPLER
	DB27073
pin 3T	pin 5
pin 3TR	pin 4
pin 6T	pin 2
pin 6TR	pin 1

- (e) Examine the shelf connector pins for damage, fit and security.
- (f) Examine the coupler connector pins for damage, fit and security.
- (g) Do continuity checks and pin to shield insulation checks.
- (h) If you find a problem with the wiring, disconnect the stub cable at the shelf station and repeat the wiring check for each section to the stub cables to isolate which stub cable section is defective.
- (i) Repair or replace the defective stub cable(s) as necessary (SWPM 20-11-11).
- (j) Re-connect the coupler connectors DB27071, DB27072 and DB27073 to the 629 Couplers B27071, B27072 and B27073.
- (k) Install the couplers that you removed above. This is the task: ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.
- (l) Re-install the PFC-C, M27306. This is the task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- (m) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (n) Do the Repair Confirmation that follows.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: Primary Flight Computer (C) Lane Reset, AMM TASK 27-02-01-740-801
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-02 TASK 935

D633W103-ARO

Page 298.312
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

936. **Primary Flight Computer (Center) Lane 2 Problems - Fault Isolation**

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLERS EVEN AFTER THE PFC HAS BEEN REPLACED.

NOTE: Avoid swapping PFCs if any of them contains a lane fault. The state machine inside the PFC that keeps track of lane faults can get confused and generate more lane faults or get into an unrecoverable state.

NOTE: If an intermittent lane fault continues to occur, the PFC will allow the lane fault to be cleared up to 10 times before it becomes permanently latched. This allows the operator 10 attempts to narrow down the cause of the lane fault. Once a lane fault is permanently latched, the PFC must be removed and sent to a repair shop to have the fault cleared. The following procedure is written to help the operator narrow down the cause of the lane fault and avoid getting to the point where the fault is permanently latched.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14007.

B. Description

- (1) The Center Primary Flight Computer (PFC-C) Lane 2 has an internal or interface fault.

C. Possible Causes

- (1) Primary Flight Computer (Center), M27306
- (2) Flight Controls ARINC 629 (L) Coupler in P112 (PFC-C), B27081
- (3) Flight Controls ARINC 629 (R) Coupler in P212 (PFC-C), B27082
- (4) Flight Controls ARINC 629 (C) Coupler in P312 (PFC-C), B27083
- (5) Wiring

D. Related Data

- (1) WDM 27-02-41
- (2) WDM 27-02-43
- (3) WDM 27-02-45
- (4) SWPM 20-11-11

E. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do this Ground Test on the MAT: Primary Flight Computer (C) Lane Reset, AMM TASK 27-02-01-740-801

NOTE: If the PFC Lane Reset was not successful, do the lane reset a second time.

- (a) If the second PFC Lane Reset was successful, swap the Center Primary Flight Computer (PFC-C), M27306 with the Left Primary Flight Computer (PFC-L), M27106. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS 935-936

D633W103-ARO

Page 298.313
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- 1) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.
 - a) If the maintenance message “27-14001 Primary Flight Computer (Left) lane 2 has an internal or interface fault” now shows, replace the Primary Flight Computer that was originally installed in the PFC-C, M27306 position (now in the PFC-L position). These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
 - b) If the maintenance message “27-14007 Primary Flight Computer (Center) lane 2 has an internal or interface fault” still shows, do the Fault Isolation Procedure below.
- (b) If the second PFC Lane Reset was not successful, the fault is latched and cannot be cleared on the airplane, replace the Center Primary Flight Computer (PFC-C), M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

F. Fault Isolation Procedure

- (1) Swap the ARINC Couplers that follow (WDM 27-02-41, WDM 27-02-43 and WDM 27-02-45):
 - Coupler B27081 (L FC BUS RCV) PFC-C LANE 2 with
 - Coupler B27041 (L FC BUS RCV) PFC-R LANE 1
 - Coupler B27082 (R FC BUS RCV) PFC-C LANE 2 with
 - Coupler B27053 (C FC BUS RCV) PFC-R LANE 2
 - Coupler B27083 (C FC BUS T/R) PFC-C LANE 2 with
 - Coupler B27062 (R FC BUS T/R) PFC-R LANE 3
- (2) These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: Swapping couplers can induce lane faults in the PFCs which would also need to be cleared by running the associated Primary Flight Computer (L, R, or C) Lane Reset Tests, AMM TASK 27-02-01-740-801.

 - (a) Do the Repair Confirmation at the end of this task.
- (3) Monitor the airplane during subsequent flight(s) to see if the maintenance message shows again.
 - (a) If the problem follows the coupler as shown in the table below, replace the applicable coupler. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 936

D633W103-ARO

Page 298.314
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DB Coupler - Original Position	DB Coupler - Swapped Position	Original Maintenance Message	New Maintenance Message after swap	Replace Defective Coupler (Currently in Swapped Position)
P112 (PFC-C), B27081	P112 (PFC-R), B27041	27-14007	27-14012	P112 (PFC-R), B27041
P212 (PFC-C), B27082	P312 (PFC-R), B27053	27-14007	27-14013	P312 (PFC-R), B27053
P312 (PFC-C), B27083	P212 (PFC-R), B27062	27-14007	27-14014	P212 (PFC-R), B27062

- (b) If the maintenance message “27-14007 Primary Flight Computer (center) lane 2 has an internal or interface fault” still shows in the PFC-C position, then continue.
- (4) Do these PFC-C to the 629 Coupler wire checks:

NOTE: Since it is not possible to determine which Stub Cable has the problem, it is recommended to examine ALL THREE Stub Cable Assemblies at the same time.

- (a) Open these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (b) Remove the PFC-C, M27306. This is the task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Disconnect connectors DB27081, DB27082 and DB27083 from these ARINC 629 Couplers:
- 1) B27081 Coupler in the P112 Panel (WDM 27-02-41)
 - 2) B27082 Coupler in the P212 Panel (WDM 27-02-43)
 - 3) B27083 Coupler in the P312 Panel (WDM 27-02-45)
- (d) Do a wiring check between these pins of connector DM27306AA or DM27306AC at the PFC-C and the 629 Coupler connectors indicated in the tables that follow:

PFC-C	B27081
DM27306AC	COUPLER
	DB27081
pin 9T	pin 5
pin 9TR	pin 4
pin 6T	pin 2
pin 6TR	pin 1

EFFECTIVITY
ARO ALL

27-02 TASK 936

D633W103-ARO

Page 298.315
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

PFC-C	B27082
DM27306AA	COUPLER
	DB27082
pin 2T	pin 5
pin 2TR	pin 4
pin 1T	pin 2
pin 1TR	pin 1

PFC-C	B27083
DM27306AA	COUPLER
	DB27083
pin 9T	pin 5
pin 9TR	pin 4
pin 10T	pin 2
pin 10TR	pin 1

- (e) Examine the shelf connector pins for damage, fit and security.
- (f) Examine the coupler connector pins for damage, fit and security.
- (g) Do continuity checks and pin to shield insulation checks.
- (h) If you find a problem with the wiring, disconnect the stub cable at the shelf station and repeat the wiring check for each section to the stub cables to isolate which stub cable section is defective.
- (i) Repair or replace the defective stub cable(s) as necessary (SWPM 20-11-11).
- (j) Re-connect the coupler connectors DB27081, DB27082 and DB27083 to the 629 Couplers B27081, B27082 and B27083.
- (k) Install the couplers that you removed above. This is the task: ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.
- (l) Re-install the PFC-L, M27306. This is the task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- (m) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (n) Do the Repair Confirmation that follows.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: Primary Flight Computer (C) Lane Reset, AMM TASK 27-02-01-740-801
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-02 TASK 936

D633W103-ARO

Page 298.316
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

937. **Primary Flight Computer (Center) Lane 3 Problems - Fault Isolation**

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLERS EVEN AFTER THE PFC HAS BEEN REPLACED.

NOTE: Avoid swapping PFCs if any of them contains a lane fault. The state machine inside the PFC that keeps track of lane faults can get confused and generate more lane faults or get into an unrecoverable state.

NOTE: If an intermittent lane fault continues to occur, the PFC will allow the lane fault to be cleared up to 10 times before it becomes permanently latched. This allows the operator 10 attempts to narrow down the cause of the lane fault. Once a lane fault is permanently latched, the PFC must be removed and sent to a repair shop to have the fault cleared. The following procedure is written to help the operator narrow down the cause of the lane fault and avoid getting to the point where the fault is permanently latched.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14008.

B. Description

- (1) The Center Primary Flight Computer (PFC-C) Lane 3 has an internal or interface fault.

C. Possible Causes

- (1) Primary Flight Computer (Cight), M27306
- (2) Flight Controls ARINC 629 (L) Coupler in P112 (PFC-C), B27091
- (3) Flight Controls ARINC 629 (R) Coupler in P212 (PFC-C), B27092
- (4) Flight Controls ARINC 629 (C) Coupler in P312 (PFC-C), B27093
- (5) Wiring

D. Related Data

- (1) WDM 27-02-41
- (2) WDM 27-02-43
- (3) WDM 27-02-45
- (4) SWPM 20-11-11

E. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do this Ground Test on the MAT: Primary Flight Computer (C) Lane Reset, AMM TASK 27-02-01-740-801

NOTE: If the PFC Lane Reset was not successful, do the lane reset a second time.

- (a) If the second PFC Lane Reset was successful, swap the Centert Primary Flight Computer (PFC-C), M27306 with the Left Primary Flight Computer (PFC-L), M27106. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS 936-937

D633W103-ARO

Page 298.317
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- 1) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.
 - a) If the maintenance message “27-14002 Primary Flight Computer (Left) lane 3 has an internal or interface fault” now shows, replace the Primary Flight Computer that was originally installed in the PFC-C, M27306 position (now in the PFC-L position). These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
 - b) If the maintenance message “27-14008 Primary Flight Computer (Center) lane 3 has an internal or interface fault” still shows, do the Fault Isolation Procedure below.
- (b) If the second PFC Lane Reset was not successful, the fault is latched and cannot be cleared on the airplane, replace the Center Primary Flight Computer (PFC-C), M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

F. Fault Isolation Procedure

- (1) Swap the ARINC Couplers that follow (WDM 27-02-41, WDM 27-02-43 and WDM 27-02-45):
 - Coupler B27091 (L FC BUS RCV) PFC-C LANE 3 with
 - Coupler B27041 (L FC BUS RCV) PFC-R LANE 1
 - Coupler B27092 (R FC BUS RCV) PFC-C LANE 3 with
 - Coupler B27053 (C FC BUS RCV) PFC-R LANE 2
 - Coupler B27093 (C FC BUS T/R) PFC-C LANE 3 with
 - Coupler B27062 (R FC BUS T/R) PFC-R LANE 3
- (2) These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: Swapping couplers can induce lane faults in the PFCs which would also need to be cleared by running the associated Primary Flight Computer (L, R, or C) Lane Reset Tests, AMM TASK 27-02-01-740-801.

 - (a) Do the Repair Confirmation at the end of this task.
- (3) Monitor the airplane during subsequent flight(s) to see if the maintenance message shows again.
 - (a) If the problem follows the coupler as shown in the table below, replace the applicable coupler. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 937

D633W103-ARO

Page 298.318
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

DB Coupler - Original Position	DB Coupler - Swapped Position	Original Maintenance Message	New Maintenance Message after swap	Replace Defective Coupler (Currently in Swapped Position)
P112 (PFC-C), B27091	P112 (PFC-R), B27041	27-14008	27-14012	P112 (PFC-R), B27041
P212 (PFC-C), B27092	P312 (PFC-R), B27053	27-14008	27-14013	P312 (PFC-R), B27053
P312 (PFC-C), B27093	P212 (PFC-R), B27062	27-14008	27-14014	P212 (PFC-R), B27062

- (b) If the maintenance message “27-14008 Primary Flight Computer (center) lane 3 has an internal or interface fault” still shows in the PFC-C position, then continue.
- (4) Do these PFC-C to the 629 Coupler wire checks:

NOTE: Since it is not possible to determine which Stub Cable has the problem, it is recommended to examine ALL THREE Stub Cable Assemblies at the same time.

- (a) Open these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (b) Remove the PFC-C, M27306. This is the task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Disconnect connectors DB27091, DB27092 and DB27093 from these ARINC 629 Couplers:
- 1) B27091 Coupler in the P112 Panel (WDM 27-02-41)
 - 2) B27092 Coupler in the P212 Panel (WDM 27-02-43)
 - 3) B27093 Coupler in the P312 Panel (WDM 27-02-45)
- (d) Do a wiring check between these pins of connector DM27306AA or DM27306AC at the PFC-C and the 629 Coupler connectors indicated in the tables that follow:

PFC-C	B27091
DM27306AC	COUPLER
	DB27091
pin 8T	pin 5
pin 8TR	pin 4
pin 10T	pin 2
pin 10TR	pin 1

EFFECTIVITY
ARO ALL

27-02 TASK 937

D633W103-ARO

Page 298.319
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

PFC-C	B27092
DM27306AC	COUPLER
	DB27092
pin 2T	pin 5
pin 2TR	pin 4
pin 4T	pin 2
pin 4TR	pin 1

PFC-C	B27093
DM27306AA	COUPLER
	DB27093
pin 8T	pin 5
pin 8TR	pin 4
pin 7T	pin 2
pin 7TR	pin 1

- (e) Examine the shelf connector pins for damage, fit and security.
- (f) Examine the coupler connector pins for damage, fit and security.
- (g) Do continuity checks and pin to shield insulation checks.
- (h) If you find a problem with the wiring, disconnect the stub cable at the shelf station and repeat the wiring check for each section to the stub cables to isolate which stub cable section is defective.
- (i) Repair or replace the defective stub cable(s) as necessary (SWPM 20-11-11).
- (j) Re-connect the coupler connectors DB27091, DB27092 and DB27093 to the 629 Couplers B27091, B27092 and B27093.
- (k) Install the couplers that you removed above. This is the task: ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.
- (l) Re-install the PFC-C, M27306. This is the task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- (m) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (n) Do the Repair Confirmation that follows.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: Primary Flight Computer (C) Lane Reset, AMM TASK 27-02-01-740-801
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-02 TASK 937

D633W103-ARO

Page 298.320
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

938. **Primary Flight Computer (Right) Lane 1 Problems - Fault Isolation**

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLERS EVEN AFTER THE PFC HAS BEEN REPLACED.

NOTE: Avoid swapping PFCs if any of them contains a lane fault. The state machine inside the PFC that keeps track of lane faults can get confused and generate more lane faults or get into an unrecoverable state.

NOTE: If an intermittent lane fault continues to occur, the PFC will allow the lane fault to be cleared up to 10 times before it becomes permanently latched. This allows the operator 10 attempts to narrow down the cause of the lane fault. Once a lane fault is permanently latched, the PFC must be removed and sent to a repair shop to have the fault cleared. The following procedure is written to help the operator narrow down the cause of the lane fault and avoid getting to the point where the fault is permanently latched.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14012.

B. Description

- (1) The Right Primary Flight Computer (PFC-R) Lane 3 has an internal or interface fault.

C. Possible Causes

- (1) Primary Flight Computer (Right), M27206
- (2) Flight Controls ARINC 629 (L) Coupler in P112 (PFC-R), B27041
- (3) Flight Controls ARINC 629 (R) Coupler in P212 (PFC-R), B27042
- (4) Flight Controls ARINC 629 (C) Coupler in P312 (PFC-R), B27043
- (5) Wiring

D. Related Data

- (1) WDM 27-02-41
- (2) WDM 27-02-43
- (3) WDM 27-02-45
- (4) SWPM 20-11-11

E. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do this Ground Test on the MAT: Primary Flight Computer (R) Lane Reset, AMM TASK 27-02-01-740-801

NOTE: If the PFC Lane Reset was not successful, do the lane reset a second time.

- (a) If the second PFC Lane Reset was successful, swap the Right Primary Flight Computer (PFC-R), M27206 with the Left Primary Flight Computer (PFC-L), M27106. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS 937-938

D633W103-ARO

Page 298.321
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- 1) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.
 - a) If the maintenance message “27-14000 Primary Flight Computer (Left) lane 1 has an internal or interface fault” now shows, replace the Primary Flight Computer that was originally installed in the PFC-R, M27206 position (now in the PFC-L position). These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
 - b) If the maintenance message “27-14012 Primary Flight Computer (Right) lane 1 has an internal or interface fault” still shows, do the Fault Isolation Procedure below.
- (b) If the second PFC Lane Reset was not successful, the fault is latched and cannot be cleared on the airplane, replace the Right Primary Flight Computer (PFC-R), M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

F. Fault Isolation Procedure

- (1) Swap the ARINC Couplers that follow (WDM 27-02-41, WDM 27-02-43 and WDM 27-02-45):
 - Coupler B27041 (L FC BUS RCV) PFC-R LANE 1 with
 - Coupler B27071 (L FC BUS RCV) PFC-C LANE 1
 - Coupler B27042 (R FC BUS T/R) PFC-R LANE 1 with
 - Coupler B27083 (C FC BUS T/R) PFC-C LANE 2
 - Coupler B27043 (C FC BUS RCV) PFC-R LANE 1 with
 - Coupler B27092 (R FC BUS RCV) PFC-C LANE 3
- (2) These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: Swapping couplers can induce lane faults in the PFCs which would also need to be cleared by running the associated Primary Flight Computer (L, R, or C) Lane Reset Tests, AMM TASK 27-02-01-740-801

 - (a) Do the Repair Confirmation at the end of this task.
- (3) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.
 - (a) If the problem follows the coupler as shown in the table below, replace the applicable coupler. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 938

D633W103-ARO

Page 298.322
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

DB Coupler - Original Position	DB Coupler - Swapped Position	Original Maintenance Message	New Maintenance Message after swap	Replace Defective Coupler (Currently in Swapped Position)
P112 (PFC-R), B27041	P112 (PFC-C), B27071	27-14012	27-14006	P112 (PFC-C), B27071
P212 (PFC-R), B27042	P312 (PFC-C), B27083	27-14012	27-14007	P312 (PFC-C), B27083
P312 (PFC-R), B27043	P212 (PFC-C), B27092	27-14012	27-14008	P212 (PFC-C), B27092

- (b) If the maintenance message “27-14012 Primary Flight Computer (right) lane 1 has an internal or interface fault” still shows in the PFC-R position, then continue.
- (4) Do these PFC-R to the 629 Coupler wire checks:
- NOTE: Since it is not possible to determine which Stub Cable has the problem, it is recommended to examine ALL THREE Stub Cable Assemblies at the same time.
- (a) Open these circuit breakers on the PSA-R, M24201:
- Power Supply Assembly Right, M24201**
- | Row | Col | Number | Name |
|-----|-----|--------|---------------|
| D | 2 | CBD2-R | PFC LANE 1 |
| D | 4 | CBD4-R | PFC LANE 2 |
| D | 6 | CBD6-R | PFC LANE 3 |
| D | 8 | CBD8-R | PFC BAT INTLK |
- (b) Remove the PFC-R, M27206. This is the task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Disconnect connectors DB27041, DB27042 and DB27043 from these ARINC 629 Couplers:
- 1) B27041 Coupler in the P112 Panel (WDM 27-02-41)
 - 2) B27042 Coupler in the P212 Panel (WDM 27-02-43)
 - 3) B27043 Coupler in the P312 Panel (WDM 27-02-45)
- (d) Do a wiring check between these pins of connector DM27206AA OR DM27206AC at the PFC-R and the 629 Coupler connectors indicated in the tables that follow:

PFC-R	B27041
DM27206AC	COUPLER
	DB27041
pin 5T	pin 5
pin 5TR	pin 4
pin 7T	pin 2
pin 7TR	pin 1

EFFECTIVITY
ARO ALL

27-02 TASK 938

D633W103-ARO

Page 298.323
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

PFC-R	B27042
DM27206AA	COUPLER
	DB27042
pin 3T	pin 5
pin 3TR	pin 4
pin 6T	pin 2
pin 6TR	pin 1

PFC-R	B27043
DM27206AC	COUPLER
	DB27063
pin 1T	pin 5
pin 1TR	pin 4
pin 3T	pin 2
pin 3TR	pin 1

- (e) Examine the shelf connector pins for damage, fit and security.
- (f) Examine the coupler connector pins for damage, fit and security.
- (g) Do continuity checks and pin to shield insulation checks.
- (h) If you find a problem with the wiring, disconnect the stub cable at the shelf station and repeat the wiring check for each section to the stub cables to isolate which stub cable section is defective.
- (i) Repair or replace the defective stub cable(s) as necessary (SWPM 20-11-11).
- (j) Re-connect the coupler connectors DB27041, DB27042 and DB27043 to the 629 Couplers B27041, B27042 and B27043.
- (k) Install the couplers that you removed above. This is the task: ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.
- (l) Re-install the PFC-R, M27206. This is the task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- (m) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- (n) Do the Repair Confirmation that follows.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: Primary Flight Computer (R) Lane Reset, AMM TASK 27-02-01-740-801
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-02 TASK 938

D633W103-ARO

Page 298.324
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

939. **Primary Flight Computer (Right) Lane 2 Problems - Fault Isolation**

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLERS EVEN AFTER THE PFC HAS BEEN REPLACED

NOTE: Avoid swapping PFCs if any of them contains a lane fault. The state machine inside the PFC that keeps track of lane faults can get confused and generate more lane faults or get into an unrecoverable state.

NOTE: If an intermittent lane fault continues to occur, the PFC will allow the lane fault to be cleared up to 10 times before it becomes permanently latched. This allows the operator 10 attempts to narrow down the cause of the lane fault. Once a lane fault is permanently latched, the PFC must be removed and sent to a repair shop to have the fault cleared. The following procedure is written to help the operator narrow down the cause of the lane fault and avoid getting to the point where the fault is permanently latched.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14013.

B. Description

- (1) The Right Primary Flight Computer (PFC-R) Lane 2 has an internal or interface fault.

C. Possible Causes

- (1) Primary Flight Computer (Right), M27206
- (2) Flight Controls ARINC 629 (L) Coupler in P112 (PFC-R), B27051
- (3) Flight Controls ARINC 629 (R) Coupler in P212 (PFC-R), B27052
- (4) Flight Controls ARINC 629 (C) Coupler in P312 (PFC-R), B27053
- (5) Wiring

D. Related Data

- (1) WDM 27-02-41
- (2) WDM 27-02-43
- (3) WDM 27-02-45
- (4) SWPM 20-11-11

E. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do this Ground Test on the MAT: Primary Flight Computer (R) Lane Reset, AMM TASK 27-02-01-740-801

NOTE: If the PFC Lane Reset was not successful, do the lane reset a second time.

- (a) If the second PFC Lane Reset was successful, swap the Right Primary Flight Computer (PFC-R), M27206 with the Left Primary Flight Computer (PFC-L), M27106. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS 938-939

D633W103-ARO

Page 298.325
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- 1) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.
 - a) If the maintenance message “27-14001 Primary Flight Computer (Left) lane 2 has an internal or interface fault” now shows, replace the Primary Flight Computer that was originally installed in the PFC-R, M27206 position (now in the PFC-L position). These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
 - b) If the maintenance message “27-14013 Primary Flight Computer (Right) lane 2 has an internal or interface fault” still shows, do the Fault Isolation Procedure below.
- (b) If the second PFC Lane Reset was not successful, the fault is latched and cannot be cleared on the airplane, replace the Right Primary Flight Computer (PFC-R), M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

F. Fault Isolation Procedure

- (1) Swap the ARINC Couplers that follow (WDM 27-02-41, WDM 27-02-43 and WDM 27-02-45):
 - Coupler B27051 (L FC BUS RCV) PFC-R LANE 2 with
 - Coupler B27071 (L FC BUS RCV) PFC-C LANE 1
 - Coupler B27052 (R FC BUS T/R) PFC-R LANE 2 with
 - Coupler B27083 (C FC BUS T/R) PFC-C LANE 2
 - Coupler B27053 (C FC BUS RCV) PFC-R LANE 2 with
 - Coupler B27092 (R FC BUS RCV) PFC-C LANE 3
- (2) These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: Swapping couplers can induce lane faults in the PFCs which would also need to be cleared by running the associated Primary Flight Computer (L, R, or C) Lane Reset Tests, AMM TASK 27-02-01-740-801

 - (a) Do the Repair Confirmation at the end of this task.
- (3) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.
 - (a) If the problem follows the coupler as shown in the table below, replace the applicable coupler. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 939

D633W103-ARO

Page 298.326
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DB Coupler - Original Position	DB Coupler - Swapped Position	Original Maintenance Message	New Maintenance Message after swap	Replace Defective Coupler (Currently in Swapped Position)
P112 (PFC-R), B27051	P112 (PFC-C), B27071	27-14013	27-14006	P112 (PFC-C), B27071
P212 (PFC-R), B27052	P312 (PFC-C), B27083	27-14013	27-14007	P312 (PFC-C), B27083
P312 (PFC-R), B27053	P212 (PFC-C), B27092	27-14013	27-14008	P212 (PFC-C), B27092

- (b) If the maintenance message “27-14013 Primary Flight Computer (right) lane 2 has an internal or interface fault” still shows in the PFC-R position, then continue.
- (4) Do these PFC-R to the 629 Coupler wire checks:

NOTE: Since it is not possible to determine which Stub Cable has the problem, it is recommended to examine ALL THREE Stub Cable Assemblies at the same time.

- (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- (b) Remove the PFC-R, M27206. This is the task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Disconnect connectors DB27051, DB27052 and DB27053 from these ARINC 629 Couplers:
- 1) B27051 Coupler in the P112 Panel (WDM 27-02-41)
 - 2) B27052 Coupler in the P212 Panel (WDM 27-02-43)
 - 3) B27053 Coupler in the P312 Panel (WDM 27-02-45)
- (d) Do a wiring check between these pins of connector DM27206AA OR DM27206AC at the PFC-R and the 629 Coupler connectors indicated in the tables that follow:

PFC-R	B27051
DM27206AA	COUPLER
	DB27051
pin 2T	pin 5
pin 2TR	pin 4
pin 1T	pin 2
pin 1TR	pin 1

EFFECTIVITY
ARO ALL

27-02 TASK 939

D633W103-ARO

Page 298.327
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

PFC-R	B27052
DM27206AA	COUPLER
	DB27052
pin 9T	pin 5
pin 9TR	pin 4
pin 10T	pin 2
pin 10TR	pin 1

PFC-R	B27053
DM27206AC	COUPLER
	DB27053
pin 9T	pin 5
pin 9TR	pin 4
pin 6T	pin 2
pin 6TR	pin 1

- (e) Examine the shelf connector pins for damage, fit and security.
- (f) Examine the coupler connector pins for damage, fit and security.
- (g) Do continuity checks and pin to shield insulation checks.
- (h) If you find a problem with the wiring, disconnect the stub cable at the shelf station and repeat the wiring check for each section to the stub cables to isolate which stub cable section is defective.
- (i) Repair or replace the defective stub cable(s) as necessary (SWPM 20-11-11).
- (j) Re-connect the coupler connectors DB27051, DB27052 and DB27053 to the 629 Couplers B27051, B27052 and B27053.
- (k) Install the couplers that you removed above. This is the task: ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.
- (l) Re-install the PFC-R, M27206. This is the task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- (m) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- (n) Do the Repair Confirmation that follows..

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: Primary Flight Computer (R) Lane Reset, AMM TASK 27-02-01-740-801
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-02 TASK 939

D633W103-ARO

Page 298.328
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

940. **Primary Flight Computer (Right) Lane 3 Problems - Fault Isolation**

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURRED BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLERS EVEN AFTER THE PFC HAS BEEN REPLACED.

NOTE: Avoid swapping PFCs if any of them contains a lane fault. The state machine inside the PFC that keeps track of lane faults can get confused and generate more lane faults or get into an unrecoverable state.

NOTE: If an intermittent lane fault continues to occur, the PFC will allow the lane fault to be cleared up to 10 times before it becomes permanently latched. This allows the operator 10 attempts to narrow down the cause of the lane fault. Once a lane fault is permanently latched, the PFC must be removed and sent to a repair shop to have the fault cleared. The following procedure is written to help the operator narrow down the cause of the lane fault and avoid getting to the point where the fault is permanently latched.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14014.

B. Description

- (1) The Right Primary Flight Computer (PFC-R) Lane 3 has an internal or interface fault.

C. Possible Causes

- (1) Primary Flight Computer (Right), M27206
- (2) Flight Controls ARINC 629 (L) Coupler in P112 (PFC-R), B27061
- (3) Flight Controls ARINC 629 (R) Coupler in P212 (PFC-R), B27062
- (4) Flight Controls ARINC 629 (C) Coupler in P312 (PFC-R), B27063
- (5) Wiring

D. Related Data

- (1) WDM 27-02-41
- (2) WDM 27-02-43
- (3) WDM 27-02-45
- (4) SWPM 20-11-11

E. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do this Ground Test on the MAT: Primary Flight Computer (R) Lane Reset, AMM TASK 27-02-01-740-801

NOTE: If the PFC Lane Reset was not successful, do the lane reset a second time.

- (a) If the second PFC Lane Reset was successful, swap the Right Primary Flight Computer (PFC-R), M27206 with the Left Primary Flight Computer (PFC-L), M27106. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS 939-940

D633W103-ARO

Page 298.329
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- 1) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.
 - a) If the maintenance message “27-14002 Primary Flight Computer (Left) lane 3 has an internal or interface fault” now shows, replace the Primary Flight Computer that was originally installed in the PFC-R, M27206 position (now in the PFC-L position). These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
 - b) If the maintenance message “27-14014 Primary Flight Computer (Right) lane 3 has an internal or interface fault” still shows, do the Fault Isolation Procedure below.
- (b) If the second PFC Lane Reset was not successful, the fault is latched and cannot be cleared on the airplane, replace the Right Primary Flight Computer (PFC-R), M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

F. Fault Isolation Procedure

- (1) Swap the ARINC Couplers that follow (WDM 27-02-41, WDM 27-02-43 and WDM 27-02-45):
 - Coupler B27061 (L FC BUS RCV) PFC-R LANE 3 with
 - Coupler B27071 (L FC BUS RCV) PFC-C LANE 1
 - Coupler B27062 (R FC BUS T/R) PFC-R LANE 3 with
 - Coupler B27083 (C FC BUS T/R) PFC-C LANE 2
 - Coupler B27063 (C FC BUS RCV) PFC-R LANE 3 with
 - Coupler B27092 (R FC BUS RCV) PFC-C LANE 3
- (2) These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: Swapping couplers can induce lane faults in the PFCs which would also need to be cleared by running the associated Primary Flight Computer (L, R, or C) Lane Reset Tests, AMM TASK 27-02-01-740-801

 - (a) Do the Repair Confirmation at the end of this task.
- (3) Monitor the airplane during the subsequent flight(s) to see if the maintenance message shows again.
 - (a) If the problem follows the coupler as shown in the table below, replace the applicable coupler. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 940

D633W103-ARO

Page 298.330
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DB Coupler - Original Position	DB Coupler - Swapped Position	Original Maintenance Message	New Maintenance Message after swap	Replace Defective Coupler (Currently in Swapped Position)
P112 (PFC-R), B27061	P112 (PFC-C), B27071	27-14014	27-14006	P112 (PFC-C), B27071
P212 (PFC-R), B27062	P312 (PFC-C), B27083	27-14014	27-14007	P312 (PFC-C), B27083
P312 (PFC-R), B27063	P212 (PFC-R), B27092	27-14014	27-14008	P212 (PFC-R), B27092

- (b) If the maintenance message “27-14014 Primary Flight Computer (right) lane 3 has an internal or interface fault” still shows in the PFC-R position, then continue.
- (4) Do these PFC-R to the 629 Coupler wire checks:

NOTE: Since it is not possible to determine which Stub Cable has the problem, it is recommended to examine ALL THREE Stub Cable Assemblies at the same time.

- (a) Open these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- (b) Remove the PFC-R, M27206. This is the task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Disconnect connectors DB27061, DB27062 and DB27063 from these ARINC 629 Couplers:
- 1) B27061 Coupler in the P112 Panel (WDM 27-02-41)
 - 2) B27062 Coupler in the P212 Panel (WDM 27-02-43)
 - 3) B27063 Coupler in the P312 Panel (WDM 27-02-45)
- (d) Do a wiring check between these pins of connector DM27206AA OR DM27206AC at the PFC-R and the 629 Coupler connectors indicated in the tables that follow:

PFC-R	B27061
DM27206AC	COUPLER
	DB27061
pin 2T	pin 5
pin 2TR	pin 4
pin 4T	pin 2
pin 4TR	pin 1

EFFECTIVITY
ARO ALL

27-02 TASK 940

D633W103-ARO

Page 298.331
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

PFC-R	B27062
DM27206AA	COUPLER
	DB27062
pin 8T	pin 5
pin 8TR	pin 4
pin 7T	pin 2
pin 7TR	pin 1

PFC-R	B27063
DM27206AC	COUPLER
	DB27063
pin 8T	pin 5
pin 8TR	pin 4
pin 10T	pin 2
pin 10TR	pin 1

- (e) Examine the shelf connector pins for damage, fit and security.
- (f) Examine the coupler connector pins for damage, fit and security.
- (g) Do continuity checks and pin to shield insulation checks.
- (h) If you find a problem with the wiring, disconnect the stub cable at the shelf station and repeat the wiring check for each section to the stub cables to isolate which stub cable section is defective.
- (i) Repair or replace the defective stub cable(s) as necessary (SWPM 20-11-11).
- (j) Re-connect the coupler connectors DB27061, DB27062 and DB27063 to the 629 Couplers B27061, B27062 and B27063.
- (k) Install the couplers that you removed above. This is the task: ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.
- (l) Re-install the PFC-R, M27206. This is the task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- (m) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- (n) Do the Repair Confirmation that follows.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: Primary Flight Computer (R) Lane Reset, AMM TASK 27-02-01-740-801
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-02 TASK 940

D633W103-ARO

Page 298.332
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

941. Primary Flight Computer (Center) is Inoperative - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14019.

B. Initial Evaluation

NOTE: This message can be caused when the PFCs get power as the engines are started. Cycling these circuit breakers will correct this problem.

- (1) Open all of these circuit breakers. After they are all open, then close them:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Transmitter Reset.
 - Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Transmitter Reset.
 - Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - If the maintenance message does not show on the MAT, then you corrected the fault.
 - If the maintenance message shows on the MAT, then continue.
- (2) Do this check of the power and ground wiring for the PFC-C:

EFFECTIVITY
ARO ALL

27-02 TASKS 940-941

D633W103-ARO

Page 298.333
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers on the left power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (b) Remove the PFC-C, M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3

- (d) Do a check for 28 VDC between these pins of connector DM27306AB, the connector for the PFC-C (WDM 27-02-33).
- 1) Pin B2 (+) and pin E2 (-)
 - 2) Pin B5 (+) and pin E5 (-)
 - 3) Pin B8 (+) and pin E8 (-).
- (e) If there is not 28 VDC between the specified pins of connector DM27306AB, then do these steps:
- 1) Replace the PSA-C, M24301. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - 2) Do a check for 28 VDC between these sets of pins again.
 - a) Pin B2 (+) and pin E2 (-)
 - b) Pin B5 (+) and pin E5 (-)
 - c) Pin B8 (+) and pin E8 (-).
 - 3) If there is not 28 VDC between these sets of pins, then do this step:
 - a) Repair the wiring between these pins of connector DM27306AB, the connector for the PFC-C and connector DM24301AD, the connector for the PSA-C (WDM 27-02-33).

DM27306AB

pin B2	.....	pin 3
pin E2	.....	pin 2
pin B5	.....	pin 8
pin E5	.....	pin 7
pin B8	.....	pin 13
pin E8	.....	pin 14

DM24301AD

EFFECTIVITY
ARO ALL

27-02 TASK 941

D633W103-ARO

Page 298.334
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Open these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- 5) Re-install the PFC-C, M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 6) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- 7) Do this ground test on the MAT:
- 27-Primary Flight Controls, System Test, Transmitter Reset.
 - Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - If the maintenance message does not show on the MAT, then you corrected the fault.
- (f) If there is 28 VDC between the specified pins of connector DM27306AB, then continue.

- (3) Do this check of the program pin wiring:

- (a) Open these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (b) Do a wiring check between pins E6 and B6 of connector DM27306AD for the PFC-C (WDM 27-02-35).
- (c) If you find a problem with the wiring, then do these steps:
- Repair the wiring.
 - Re-install the PFC-C, M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.

EFFECTIVITY
ARO ALL

27-02 TASK 941

D633W103-ARO

Page 298.335
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- 4) Do this ground test on the MAT:

- 27-Primary Flight Controls, System Test, Transmitter Reset.
- Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
- Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
- If the maintenance message does not show on the MAT, then you corrected the fault.

(d) If you do not find a problem with the wiring, then continue.

- (4) Re-install the PFC-C, M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.

- (5) Replace the ARINC 629 coupler, DB27073, in the P312 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects lane 1 of the PFC-C to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:

- 27-Primary Flight Controls, System Test, Transmitter Reset.
- Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
- If the maintenance message does not show on the MAT, then you corrected the fault.
- If the maintenance message shows on the MAT, then continue.

- (6) Replace the ARINC 629 coupler, DB27083, in the P312 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects lane 2 of the PFC-C to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:

- 27-Primary Flight Controls, System Test, Transmitter Reset.
- Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
- Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
- If the maintenance message does not show on the MAT, then you corrected the fault.
- If the maintenance message shows on the MAT, then continue.

- (7) Replace the ARINC 629 coupler, DB27093, in the P312 panel. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASK 941

D633W103-ARO

Page 298.336
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects lane 3 of the PFC-C to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - 3) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - 4) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 5) If the maintenance message shows on the MAT, then continue.
- (8) Do this check of the wiring from the PFC-C to the 629 couplers:
- (a) Open these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- (b) Remove the PFC-C, M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Disconnect connector DB27073 from the 629 coupler, B27073.
- (d) Disconnect connector DB27083 from the 629 coupler, B27083.
- (e) Disconnect connector DB27093 from the 629 coupler, B27093.
- (f) Do a wiring check between these pins of connector DM27306AB for the PFC-C and connectors DB27073, DB27083, and DB27093 for the 629 couplers (WDM 27-02-45):

DM27306AA	DB27073
pin 3T	pin 5
pin 3TR	pin 4
pin 6T	pin 2
pin 6TR	pin 1

DM27306AA	DB27083
pin 9T	pin 5
pin 9TR	pin 4
pin 10T	pin 2
pin 10TR	pin 1

EFFECTIVITY
ARO ALL

27-02 TASK 941

D633W103-ARO

Page 298.337
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27306AA

pin 8T pin 5
pin 8TR pin 4
pin 7T pin 2
pin 7TR pin 1

DB27093

- (g) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install the PFC-C, M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 3) Re-connect connector DB27073, DB27083, and DB27093 to their 629 couplers.
 - 4) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

- 5) Do this ground test on the MAT:
- a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - c) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - d) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

942. Primary Flight Computer (Right) is Inoperative - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14020.

B. Initial Evaluation

NOTE: This message can be caused when the PFCs get power as the engines are started. Cycling these circuit breakers will correct this problem.

- (1) Open all of these circuit breakers. After they are all open, then close all of these circuit breakers:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

EFFECTIVITY
ARO ALL

27-02 TASKS 941-942

D633W103-ARO

Page 298.338
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - (c) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - (d) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (e) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - 3) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - 4) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 5) If the maintenance message shows on the MAT, then continue.
- (2) Do this check of the power and ground wiring for the PFC-R:
 - (a) Open these circuit breakers on the left power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- (b) Remove the PFC-R, M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3

EFFECTIVITY
ARO ALL

27-02 TASK 942

D633W103-ARO

Page 298.339
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a check for 28 VDC between these pins of connector DM27206AB, the connector for the PFC-R (WDM 27-02-34).
- 1) Pin B2 (+) and pin E2 (-)
 - 2) Pin B5 (+) and pin E5 (-)
 - 3) Pin B8 (+) and pin E8 (-).
- (e) If there is not 28 VDC between the specified pins of connector DM27206AB, then do these steps:
- 1) Replace the PSA-R, M24201. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - 2) Do a check for 28 VDC between these sets of pins again.
 - a) Pin B2 (+) and pin E2 (-)
 - b) Pin B5 (+) and pin E5 (-)
 - c) Pin B8 (+) and pin E8 (-).
 - 3) If there is not 28 VDC between these sets of pins, then do this step:
 - a) Repair the wiring between these pins of connector DM27206AB, the connector for the PFC-R and connector DM24201AD, the connector for the PSA-R (WDM 27-02-34).

DM27206AB		DM24201AD	
pin B2	.....	pin 3	
pin E2	.....	pin 2	
pin B5	.....	pin 8	
pin E5	.....	pin 7	
pin B8	.....	pin 13	
pin E8	.....	pin 14	

- 4) Open these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- 5) Re-install the PFC-R, M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 6) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

EFFECTIVITY
ARO ALL

27-02 TASK 942

D633W103-ARO

Page 298.340
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 7) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - c) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - d) If the maintenance message does not show on the MAT, then you corrected the fault.
- (f) If there is 28 VDC between the specified pins of connector DM27306AB, then continue.
- (3) Do this check of the program pin wiring:
 - (a) Open these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- (b) Do a wiring check between pins F5 and J5 of connector DM27206AD for the PFC-R (WDM 27-02-35).
- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PFC-R, M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 3) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
 - c) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
 - d) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (4) Re-install the PFC-R, M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- (5) Replace the ARINC 629 coupler, DB27042, in the P212 panel. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASK 942

D633W103-ARO

Page 298.341
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects lane 1 of the PFC-R to the Flt Ctrl 629 Bus-R.

(a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 2) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
- 3) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
- 4) If the maintenance message does not show on the MAT, then you corrected the fault.
- 5) If the maintenance message shows on the MAT, then continue.

(6) Replace the ARINC 629 coupler, DB27052, in the P212 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects lane 2 of the PFC-R to the Flt Ctrl 629 Bus-R.

(a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 2) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
- 3) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
- 4) If the maintenance message does not show on the MAT, then you corrected the fault.
- 5) If the maintenance message shows on the MAT, then continue.

(7) Replace the ARINC 629 coupler, DB27062, in the P212 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects lane 3 of the PFC-R to the Flt Ctrl 629 Bus-R.

(a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 2) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
- 3) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
- 4) If the maintenance message does not show on the MAT, then you corrected the fault.
- 5) If the maintenance message shows on the MAT, then continue.

(8) Do this check of the wiring from the PFC-R to the 629 couplers:

(a) Open these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2

EFFECTIVITY
ARO ALL

27-02 TASK 942

D633W103-ARO

Page 298.342
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- (b) Remove the PFC-R, M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (c) Disconnect connector DB27042 from the 629 coupler, B27042.
- (d) Disconnect connector DB27052 from the 629 coupler, B27052.
- (e) Disconnect connector DB27062 from the 629 coupler, B27062.
- (f) Do a wiring check between these pins of connector DM27206AB for the PFC-R and connectors DB27042, DB27052, and DB27062 for the 629 couplers (WDM 27-02-45):

DM27206AA	DB27042
pin 3T	pin 5
pin 3TR	pin 4
pin 6T	pin 2
pin 6TR	pin 1

DM27206AA	DB27052
pin 9T	pin 5
pin 9TR	pin 4
pin 10T	pin 2
pin 10TR	pin 1

DM27206AA	DB27062
pin 8T	pin 5
pin 8TR	pin 4
pin 7T	pin 2
pin 7TR	pin 1

- (g) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install the PFC-R, M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 3) Re-connect connector DB27042, DB27052, and DB27062 to their 629 couplers.
 - 4) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

- 5) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASK 942

D633W103-ARO

Page 298.343
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) 27-Primary Flight Controls, System Test, Transmitter Reset.
- b) Set the PRIMARY FLIGHT COMPUTER DISC switch, on the overhead panel, to the DISC position.
- c) Set the PRIMARY FLIGHT COMPUTER DISC switch back to the AUTO position.
- d) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

943. Primary Flight Computer (Left) Signals Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14025.

B. Fault Isolation Procedure

- (1) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

944. Primary Flight Computer (Center) Signals Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14026.

B. Fault Isolation Procedure

- (1) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

945. Primary Flight Computer (Right) Signals Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14027.

B. Fault Isolation Procedure

- (1) Replace the right flight computer (PFC-R), M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

EFFECTIVITY
ARO ALL

27-02 TASKS 942-945

D633W103-ARO

Page 298.344
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 2) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

946. Flight Controls Power (Left) Problems - Fault Isolation

NOTE: This message is set and latched if PFC R and C are not receiving ARINC 629 data from ACE-L1, PSA-L, and PFC-L. The PFC must receive data from all of these LRUs for the fault to clear.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15100.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:

NOTE: Make sure that the ACE-L1, PSA-L, and PFC-L are powered.

- (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the left power supply assembly (PSA-L), M24101. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
- (b) 27-Primary Flight Controls, System Test, Transmitter Reset.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

947. Flight Controls Power (Center) Problems - Fault Isolation

NOTE: This message is set and latched if PFC L and R are not receiving ARINC 629 data from ACE-C, PSA-C, PFC-C, and SAARU. The PFC must receive data from all of these LRUs for the fault to clear.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15101.

EFFECTIVITY
ARO ALL

27-02 TASKS 945-947

D633W103-ARO

Page 298.345
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:

NOTE: Make sure that the ACE-C, PSA-C, PFC-C, and SAARU are powered.

- (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the center power supply assembly (PSA-C), M24301. These are the tasks:

- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
- Power Supply Assembly Installation, AMM TASK 24-35-01-400-801

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the ground test display, then continue.

- (2) Do this task: Flight Controls 629 Bus-C is Failed - Fault Isolation, 23-91 TASK 802.

NOTE: Look for maintenance message 27-15101 instead of 23-81002 when you do the Fault Isolation Procedure for maintenance message 23-81002.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the ground test display, then continue.

————— **END OF TASK** —————

948. Flight Controls Power (Right) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15102.

B. Fault Isolation Procedure

- (1) Replace the right power supply assembly (PSA-R), M24201. These are the tasks:

- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
- Power Supply Assembly Installation, AMM TASK 24-35-01-400-801

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the maintenance message shows on the display, go to the next step.

EFFECTIVITY
ARO ALL

27-02 TASKS 947-948

D633W103-ARO

Page 298.346
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) Check the FBW voltage on the Electrical Maintenance Page.
 - (a) If the FBW voltage is blank, check for ground and power at the PSA-R rack.
 - 1) If you find any problem, do the steps as necessary to fix the problem.
 - 2) If you do not find any problem and there are no other flight control related status messages, replace the ARINC 629 coupler M24201.

— END OF TASK —

949. Actuator Control Electronics (Left-1) Internal Fault - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16041.

B. Initial Evaluation

NOTE: This fault can only occur during a ground test on the MAT. Make a note of which ground test you did when this message occurred.

C. Fault Isolation Procedure

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT.
 - (a) If maintenance message 27-13041 shows (in the 27 Primary Flight Controls section) on the MAT, then do the Fault Isolation Procedure for maintenance message 27-13041.
 - 1) Do the applicable ground test, on the MAT, again.

NOTE: The applicable ground test is the one that you made the note of in the Initial Evaluation above.
 - 2) If maintenance message 27-16041 does not show on the ground test display, then you corrected the fault.
 - (b) If maintenance message 27-13041 does not show (in the 27 Primary Flight Controls section) on the MAT, then continue
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do the applicable ground test again.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

— END OF TASK —

950. Actuator Control Electronics (Left-2) Internal Fault - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16042.

B. Initial Evaluation

NOTE: This fault can only occur during a ground test on the MAT. Make a note of which ground test you did when this message occurred.

EFFECTIVITY
ARO ALL

27-02 TASKS 948-950

D633W103-ARO

Page 298.347
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT.
 - (a) If maintenance message 27-13042 shows (in the 27 Primary Flight Controls section) on the MAT, then do the Fault Isolation Procedure for maintenance message 27-13042.
 - 1) Do the applicable ground test, on the MAT, again.

NOTE: The applicable ground test is the one that you made the note of in the Initial Evaluation above.
 - 2) If maintenance message 27-16042 does not show on the ground test display, then you corrected the fault.
 - (b) If maintenance message 27-13042 does not show (in the 27 Primary Flight Controls section) on the MAT, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do the applicable ground test again.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

951. Actuator Control Electronics (ACE-C) Internal Fault - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16043.

B. Initial Evaluation

NOTE: This fault can only occur during a ground test on the MAT. Make a note of which ground test you did when this message occurred.

C. Fault Isolation

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT.
 - (a) If maintenance message 27-13043 shows (in the 27 Primary Flight Controls section) on the MAT, then do the Fault Isolation Procedure for maintenance message 27-13043.
 - 1) Do the applicable ground test, on the MAT, again.

NOTE: The applicable ground test is the one that you made the note of in the Initial Evaluation above.
 - 2) If maintenance message 27-16043 does not show on the ground test display, then you corrected the fault.
 - (b) If maintenance message 27-13043 does not show (in the 27 Primary Flight Controls section) on the MAT, then continue.
- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS 950-951

D633W103-ARO

Page 298.348
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do the applicable ground test again.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

952. Actuator Control Electronics (ACE-R) Internal Fault - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16044.

B. Initial Evaluation

NOTE: This fault can only occur during a ground test on the MAT. Make a note of which ground test you did when this message occurred.

C. Fault Isolation Procedure

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT.
 - (a) If maintenance message 27-13044 shows (in the 27 Primary Flight Controls section) on the MAT, then do the Fault Isolation Procedure for maintenance message 27-13044.
 - 1) Do the applicable ground test, on the MAT, again.

NOTE: The applicable ground test is the one that you made the note of in the Initial Evaluation above.
 - 2) If maintenance message 27-16044 does not show on the ground test display, then you corrected the fault.
 - (b) If maintenance message 27-13044 does not show (in the 27 Primary Flight Controls section) on the MAT, then continue
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do the applicable ground test again.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

953. ACE-L1, ACE PWR SUPP VALID 2 Circuit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17011.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 951-953

D633W103-ARO

Page 298.349
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) After 1.5 minutes, look at the message on the MAT:
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
 - (a) For the IOM(M008) and IOM(M009) modules in the right AIMS cabinet, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27121AB (for ACE-L1) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-07):

DM27121AB	J410-A	J420-A
pin J2	pin C5	pin C5
pin K1	GROUND	GROUND

- (e) Do a wiring check between these contacts of connector DM27121AB (for ACE-L1) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-07):
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IOM(M008) and IOM(M009) modules in the right AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.

EFFECTIVITY
ARO ALL

27-02 TASK 953

D633W103-ARO

Page 298.350
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) After 1.5 minutes, look at the message on the MAT:
- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 7) If the MAT shows ACTIVE for the maintenance message, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M008) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (a) Re-install the IOM(M009) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (d) After 1.5 minutes, look at the message on the MAT:
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M009) module in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) After 1.5 minutes, look at the message on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASK 953

D633W103-ARO

Page 298.351
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.

————— END OF TASK —————

954. ACE-L2, ACE PWR SUPP VALID 1 Circuit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17012.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) After 1.5 minutes, look at the message on the MAT:
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
- (a) For the IOM(M008) and IOM(M009) modules in the left AIMS cabinet, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
- (b) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Remove the left 2 actuator control electronics (ACE-L2), M27121, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27122AB (for ACE-L2) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-04):

EFFECTIVITY
ARO ALL

27-02 TASKS 953-954

D633W103-ARO

Page 298.352
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27122AB	J410-A	J420-A
pin J3	GROUND	GROUND
pin K2	pin D13	pin D13

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the IOM(M008) and IOM(M009) modules in the left AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) After 1.5 minutes, look at the message on the MAT:
 - 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 7) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M008) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (a) Re-install the IOM(M009) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (d) After 1.5 minutes, look at the message on the MAT:
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 954

D633W103-ARO

Page 298.353
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M009) module in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) After 1.5 minutes, look at the message on the MAT:
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.

————— END OF TASK —————

955. ACE-L2, ACE PWR SUPP VALID 2 Circuit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17013.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) After 1.5 minutes, look at the message on the MAT:
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
 - (a) For the IOM(M008) and IOM(M009) modules in the right AIMS cabinet, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Remove the left 2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

EFFECTIVITY
ARO ALL

27-02 TASKS 954-955

D633W103-ARO

Page 298.354
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these contacts of connector DM27122AB (for ACE-L2) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-49) (SSM 31-41-07):

DM27122AB	J410-A	J420-B
pin J2	pin D13	pin D13
pin K1	GROUND	GROUND

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the IOM(M008) and IOM(M009) modules in the right AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:
- Left Power Management Panel, P110**
- | Row | Col | Number | Name |
|-----|-----|--------|------------------------------|
| K | 23 | C27613 | ELEV FEEL ACTR |
| K | 24 | C27612 | STAB TRIM ARM-R |
| K | 25 | C27611 | AIL PCU LIB(BLK)/LOB(BYP) |
| K | 26 | C27610 | FLPRN PCU RIB(BYP)/SPLR 4&11 |
| K | 27 | C27609 | ELEV PCU RIB(BLK)/ROB(BYP) |
| K | 28 | C27608 | ACE-L2 PWR |
- 5) After 1.5 minutes, look at the message on the MAT:
 - 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 7) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M008) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (a) Re-install the IOM(M009) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

EFFECTIVITY
ARO ALL

27-02 TASK 955

D633W103-ARO

Page 298.355
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) After 1.5 minutes, look at the message on the MAT:
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M009) module in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) After 1.5 minutes, look at the message on the MAT:
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

956. ACE-C, ACE PWR SUPP VALID 1 Circuit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17014.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) After 1.5 minutes, look at the message on the MAT:
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
 - (a) For the IOM(M003) and IOM(M004) modules in the left AIMS cabinet, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU

EFFECTIVITY
ARO ALL

27-02 TASKS 955-956

D633W103-ARO

Page 298.356
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27321AB (for ACE-C) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-50) (SSM 31-41-05):

DM27321AB	J240-A	J250-A
pin J3	GROUND	GROUND
pin K2	pin C5	pin C5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the IOM(M003) and IOM(M004) modules in the left AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) After 1.5 minutes, look at the message on the MAT:
 - 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 7) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M003) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (a) Re-install the IOM(M004) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-02 TASK 956

D633W103-ARO

Page 298.357
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (d) After 1.5 minutes, look at the message on the MAT:
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M004) module in the left AIMS cabinet. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) After 1.5 minutes, look at the message on the MAT:
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.

————— END OF TASK —————

957. ACE-C, ACE PWR SUPP VALID 2 Circuit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17015.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) After 1.5 minutes, look at the message on the MAT:
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:

EFFECTIVITY
ARO ALL

27-02 TASKS 956-957

D633W103-ARO

Page 298.358
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) For the IOM(M003) and IOM(M004) modules in the right AIMS cabinet, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
- (b) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27321AB (for ACE-C) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-50) (SSM 31-41-08):

DM27321AB	J240-A	J250-A
pin J2	pin C5	pin C5
pin K1	GROUND	GROUND

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IOM(M003) and IOM(M004) modules in the right AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) After 1.5 minutes, look at the message on the MAT:
- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASK 957

D633W103-ARO

Page 298.359
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 7) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M003) module in the right AIMS cabinet. To install it, do this task:
Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (a) Re-install the IOM(M004) module in the right AIMS cabinet. To install it, do this task:
Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (d) After 1.5 minutes, look at the message on the MAT:
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M004) module in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) After 1.5 minutes, look at the message on the MAT:
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

958. ACE-R, ACE PWR SUPP VALID 1 Circuit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17016.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASKS 957-958

D633W103-ARO

Page 298.360
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) After 1.5 minutes, look at the message on the MAT:
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
- (a) For the IOM(M003) and IOM(M004) modules in the left AIMS cabinet, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
- (b) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-2 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27221AB (for ACE-R) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-50) (SSM 31-41-05):

DM27221AB	J410-A	J420-A
pin J3	GROUND	GROUND
pin K2	pin D13	pin D13

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the IOM(M003) and IOM(M004) modules in the left AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU

EFFECTIVITY
ARO ALL

27-02 TASK 958

D633W103-ARO

Page 298.361
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) After 1.5 minutes, look at the message on the MAT:
- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 7) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M003) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (a) Re-install the IOM(M004) module in the left AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (d) After 1.5 minutes, look at the message on the MAT:
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M004) module in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) After 1.5 minutes, look at the message on the MAT:
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.

————— END OF TASK —————

959. ACE-R, ACE PWR SUPP VALID 2 Circuit Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17017.

EFFECTIVITY
ARO ALL

27-02 TASKS 958-959

D633W103-ARO

Page 298.362
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) After 1.5 minutes, look at the message on the MAT:
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the discrete wiring:
 - (a) For the IOM(M003) and IOM(M004) modules in the right AIMS cabinet, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
 - (b) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-2 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these contacts of connector DM27221AB (for ACE-R) and the connectors for the two IOM modules (at the AIMS cabinet) (WDM 27-02-50) (SSM 31-41-08):

DM27221AB	J240-A	J250-A
pin J2	pin D13	pin D13
pin K1	GROUND	GROUND

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-02 TASK 959

D633W103-ARO

Page 298.363
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install the IOM(M003) and IOM(M004) modules in the right AIMS cabinet. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) After 1.5 minutes, look at the message on the MAT:
- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 7) If the MAT shows ACTIVE for the maintenance message, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new IOM(M003) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (a) Re-install the IOM(M004) module in the right AIMS cabinet. To install it, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (d) After 1.5 minutes, look at the message on the MAT:
- (e) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the IOM(M004) module in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801

EFFECTIVITY
ARO ALL

27-02 TASK 959

D633W103-ARO

Page 298.364
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) After 1.5 minutes, look at the message on the MAT.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.

————— END OF TASK —————

960. Autopilot Flight Director Computer Command Signals Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19730.

B. Initial Evaluation

- (1) Do these steps to test the autopilot:
 - (a) Do this task: Air Data Inertial Reference Unit - Alignment, AMM TASK 34-21-00-820-801.
NOTE: The ADIRU must be aligned for the autopilot to operate.
 - (b) Set the two flight director (F/D) switches on the mode control panel to the OFF position.
 - (c) Push one of the autopilot engage (A/P) switches to engage the autopilot.
 - (d) Push the SEL switch.
 - (e) Turn the heading selector knob one or more full turns in the clockwise and the counterclockwise directions.
NOTE: The heading selector knob is the knob that is immediately outside the SEL switch.
 - (f) Turn the vertical speed (V/S) wheel one or more full turns in the UP and the DOWN directions.
 - (g) Look for these messages on the EICAS display:
 - 1) NO LAND 3 (ADVISORY)
 - 2) NO AUTOLAND (ADVISORY)
 - 3) A/P DISC (WARNING)
 - (h) If one or more of these messages shows on the EICAS display, then do the Fault Isolation Procedure below.
 - (i) If none of these messages show on the EICAS display, then there was an intermittent fault.
- (2) Do these steps to test the autopilot flight director computer (AFDC):
 - (a) Do this task: Autopilot Flight Director Computers - System Test, AMM TASK 22-11-00-730-802.
 - (b) If the AFDC system test fail, then do the Fault Isolation Procedure below.
 - (c) If the AFDC system test pass, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: You must do the Initial Evaluation procedure above before you do this Fault Isolation Procedure.

- (1) For each EICAS message that you found above, do this task: How to Find a Maintenance Message Correlated to an Existing (Active or Latched) Flight Deck Effect, AMM TASK 45-10-00-740-801
 - (a) For each maintenance message other than maintenance message 27-19730, do these steps:

EFFECTIVITY
ARO ALL

27-02 TASKS 959-960

D633W103-ARO

Page 298.365
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Find the maintenance message in the Maintenance Message Index.
- 2) Do the procedure listed in the Maintenance Message Index.
- (b) If maintenance message 27-19730 is the only maintenance message that shows (or if you have corrected all the other maintenance messages), then continue.
- (c) If NO LAND 3 is the only message on the EICAS display, then do the LRU test of the Autopilot Flight Director Computer (AFDC):
 - 1) Make these selections on the MAT:
 - a) ONBOARD MAINTENANCE
 - b) LINE MAINTENANCE
 - c) GROUND TESTS
 - d) 22 Autopilot Flight Director System
 - e) LRU REPLACEMENT TEST
 - f) Autopilot Flight Director Computer (left, center, right)
 - g) CONTINUE
 - 2) Do the instructions that show on the MAT and make these selections:
 - a) CONTINUE
 - b) START TEST
 - 3) When the test is completed, if PASSED shows adjacent to TEST CONDITION on the MAT, then you corrected the fault.
 - 4) If FAILED shows, then continue.
- (2) Replace the left autopilot flight director computer, M22101. These are the tasks:
 - Autopilot Flight Director Computer Removal, AMM TASK 22-11-01-000-801
 - Autopilot Flight Director Computer Installation, AMM TASK 22-11-01-400-801
- (a) Do these steps to test the autopilot:
 - 1) Push one of the autopilot engage (A/P) switches to engage the autopilot.
 - 2) Push the SEL switch.
 - 3) Turn the heading selector knob one or more full turns in the clockwise and the counterclockwise directions.
 - 4) Turn the vertical speed (V/S) wheel one or more full turns in the UP and the DOWN directions.
 - 5) Look for these messages on the EICAS display:
 - a) NO LAND 3 (ADVISORY)
 - b) NO AUTOLAND (ADVISORY)
 - c) A/P DISC (WARNING)
 - 6) If none of these messages show on the EICAS display, then you corrected the fault.
 - 7) If one or more of these messages shows on the EICAS display, then continue.
- (3) For the EICAS messages that you found above, do this task: How to Find a Maintenance Message Correlated to an Existing (Active or Latched) Flight Deck Effect, AMM TASK 45-10-00-740-801
 - (a) For each maintenance message other than maintenance message 27-19730, do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK 960

D633W103-ARO

Page 298.366
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Find the maintenance message in the Maintenance Message Index.
- 2) Do the procedure listed in the Maintenance Message Index.
- (b) If maintenance message 27-19730 is the only maintenance message that shows (or if you have corrected all the other maintenance messages), then continue.
- (4) Replace the right autopilot flight director computer, M22201. These are the tasks:
 - Autopilot Flight Director Computer Removal, AMM TASK 22-11-01-000-801
 - Autopilot Flight Director Computer Installation, AMM TASK 22-11-01-400-801
- (a) Do these steps to test the autopilot:
 - 1) Push one of the autopilot engage (A/P) switches to engage the autopilot.
 - 2) Push the SEL switch.
 - 3) Turn the heading selector knob one or more full turns in the clockwise and the counterclockwise directions.
 - 4) Turn the vertical speed (V/S) wheel one or more full turns in the UP and the DOWN directions.
 - 5) Look for these messages on the EICAS display:
 - a) NO LAND 3 (ADVISORY)
 - b) NO AUTOLAND (ADVISORY)
 - c) A/P DISC (WARNING)
 - 6) If none of these messages show on the EICAS display, then you corrected the fault.
 - 7) If one or more of these messages shows on the EICAS display, then continue.
- (5) Replace the center autopilot flight director computer, M22301. These are the tasks:
 - Autopilot Flight Director Computer Removal, AMM TASK 22-11-01-000-801
 - Autopilot Flight Director Computer Installation, AMM TASK 22-11-01-400-801
- (a) Do these steps to test the autopilot:
 - 1) Push one of the autopilot engage (A/P) switches to engage the autopilot.
 - 2) Push the SEL switch.
 - 3) Turn the heading selector knob one or more full turns in the clockwise and the counterclockwise directions.
 - 4) Turn the vertical speed (V/S) wheel one or more full turns in the UP and the DOWN directions.
 - 5) Look for these messages on the EICAS display:
 - a) NO LAND 3 (ADVISORY)
 - b) NO AUTOLAND (ADVISORY)
 - c) A/P DISC (WARNING)
 - 6) If none of these messages show on the EICAS display, then you corrected the fault.

————— **END OF TASK** —————

961. Actuator Control Electronics Failed Its Replacement Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16001.

EFFECTIVITY
ARO ALL

27-02 TASKS 960-961

D633W103-ARO

Page 298.367
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: This maintenance message only occurs when you do one of the Actuator Control Electronics Replacement tests on the MAT. Make a note of which Actuator Control Electronics Replacement test (L1, L2, C, or R) you did. Do the Fault Isolation Procedure for the equivalent ACE.

C. Fault Isolation Procedure

- (1) Remove the applicable ACE (L1=M27121, L2=M27122, C=M27321, R=M27221). To install it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (a) Look for bent or pushed-back pins in the electrical connector for the ACE.
 - (b) If you find a bent or pushed-back pin, then do these steps:
 - 1) Repair all the pins that have a problem.
 - 2) Re-install the ACE. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If you do not find a bent or pushed-back pin, then continue.
- (2) Install a new ACE (L1=M27121, L2=M27122, C=M27321, R=M27221). To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then do these steps:
 - 1) Look for the other maintenance messages that show on the ground test display.
 - 2) Find each message in the Maintenance Message Index.
 - 3) Do the specified fault isolation task.
 - 4) After you have corrected the maintenance messages other than 27-16001, do this ground test on the MAT:
 - a) 27-Primary Flight Controls, LRU Replacement Test, Actuator Control Electronics.
 - 5) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

962. Autopilot Flight Director Computer (Left) Command Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-18010.

EFFECTIVITY
ARO ALL

27-02 TASKS 961-962

D633W103-ARO

Page 298.368
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Do these steps to test the autopilot flight director computer (AFDC):
 - (a) Do this task: Autopilot Flight Director Computers - System Test, AMM TASK 22-11-00-730-802.
 - (b) If the AFDC system test fail, then do the Fault Isolation Procedure below.
 - (c) If the AFDC system test pass, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the left autopilot flight director computer, M22101. These are the tasks:
 - Autopilot Flight Director Computer Removal, AMM TASK 22-11-01-000-801
 - Autopilot Flight Director Computer Installation, AMM TASK 22-11-01-400-801
- (a) Do these steps to test the autopilot:
 - 1) Do this task: Air Data Inertial Reference Unit - Alignment, AMM TASK 34-21-00-820-801.
NOTE: The ADIRU must be aligned for the autopilot to operate.
 - 2) Set the two flight director (F/D) switches on the mode control panel to the OFF position.
 - 3) Push one of the autopilot engage (A/P) switches to engage the autopilot.
 - 4) Push the SEL switch.
 - 5) Turn the heading selector knob one or more full turns in the clockwise and the counterclockwise directions.
NOTE: The heading selector knob is the knob that is immediately outside the SEL switch.
 - 6) Turn the vertical speed (V/S) wheel one or more full turns in the UP and the DOWN directions.
 - 7) Look for these messages on the EICAS display:
 - a) NO LAND 3 (ADVISORY)
 - b) NO AUTOLAND (ADVISORY)
 - c) A/P DISC (WARNING)
 - 8) If none of these messages show on the EICAS display, then you corrected the fault.

END OF TASK

963. Autopilot Flight Director Computer (Center) Command Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19750.

B. Initial Evaluation

- (1) Do these steps to test the autopilot flight director computer (AFDC):
 - (a) Do this task: Autopilot Flight Director Computers - System Test, AMM TASK 22-11-00-730-802.
 - (b) If the AFDC system test fail, then do the Fault Isolation Procedure below.
 - (c) If the AFDC system test pass, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 962-963

D633W103-ARO

Page 298.369
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the center autopilot flight director computer, M22301. These are the tasks:
 - Autopilot Flight Director Computer Removal, AMM TASK 22-11-01-000-801
 - Autopilot Flight Director Computer Installation, AMM TASK 22-11-01-400-801
- (a) Do these steps to test the autopilot:
 - 1) Do this task: Air Data Inertial Reference Unit - Alignment, AMM TASK 34-21-00-820-801.
NOTE: The ADIRU must be aligned for the autopilot to operate.
 - 2) Set the two flight director (F/D) switches on the mode control panel to the OFF position.
 - 3) Push one of the autopilot engage (A/P) switches to engage the autopilot.
 - 4) Push the SEL switch.
 - 5) Turn the heading selector knob one or more full turns in the clockwise and the counterclockwise directions.
NOTE: The heading selector knob is the knob that is immediately outside the SEL switch.
 - 6) Turn the vertical speed (V/S) wheel one or more full turns in the UP and the DOWN directions.
 - 7) Look for these messages on the EICAS display:
 - a) NO LAND 3 (ADVISORY)
 - b) NO AUTOLAND (ADVISORY)
 - c) A/P DISC (WARNING)
 - 8) If none of these messages show on the EICAS display, then you corrected the fault.

————— END OF TASK —————

964. Autopilot Flight Director Computer (Right) Command Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19790.

B. Initial Evaluation

- (1) Do these steps to test the autopilot flight director computer (AFDC):
 - (a) Do this task: Autopilot Flight Director Computers - System Test, AMM TASK 22-11-00-730-802.
 - (b) If the AFDC system test fail, then do the Fault Isolation Procedure below.
 - (c) If the AFDC system test pass, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the right autopilot flight director computer, M22201. These are the tasks:
 - Autopilot Flight Director Computer Removal, AMM TASK 22-11-01-000-801
 - Autopilot Flight Director Computer Installation, AMM TASK 22-11-01-400-801
- (a) Do these steps to test the autopilot:

EFFECTIVITY
ARO ALL

27-02 TASKS 963-964

D633W103-ARO

Page 298.370
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Do this task: Air Data Inertial Reference Unit - Alignment, AMM TASK 34-21-00-820-801.
NOTE: The ADIRU must be aligned for the autopilot to operate.
- 2) Set the two flight director (F/D) switches on the mode control panel to the OFF position.
- 3) Push one of the autopilot engage (A/P) switches to engage the autopilot.
- 4) Push the SEL switch.
- 5) Turn the heading selector knob one or more full turns in the clockwise and the counterclockwise directions.
NOTE: The heading selector knob is the knob that is immediately outside the SEL switch.
- 6) Turn the vertical speed (V/S) wheel one or more full turns in the UP and the DOWN directions.
- 7) Look for these messages on the EICAS display:
 - a) NO LAND 3 (ADVISORY)
 - b) NO AUTOLAND (ADVISORY)
 - c) A/P DISC (WARNING)
- 8) If none of these messages show on the EICAS display, then you corrected the fault.

————— **END OF TASK** —————

965. EICAS Message PITCH DOWN (UP) AUTHORITY - Fault Isolation

A. Description

- (1) This task is for these EICAS Messages:
 - (a) PITCH DOWN AUTHORITY
 - 1) The Elevator is approaching Nose DOWN Saturation and the column is near the detent position.
 - (b) PITCH UP AUTHORITY
 - 1) The Elevator is approaching Nose UP Saturation and the column is near the detent position.

B. Fault Isolation Procedure

- (1) This is an Information Only EICAS Message. No maintenance action is necessary.

————— **END OF TASK** —————

966. Flight Control Hydraulic (L system) Shutoff Valve (Wing) Problems - Fault Isolation

A. Initial Evaluation

- (1) Set the L FLT CONTROL HYD VALVE POWER switch for the WING to the SHUTOFF position.
 - (a) If the VALVE CLOSED light, below the switch, does not come on, then do the Fault Isolation Procedure below.
NOTE: If the valve was deactivated to fly the airplane (per the DDG), then you must remove the lockwire from the valve before you do this fault isolation procedure. To remove the lockwire from the valve, (AMM TASK 27-00-00-440-801).
 - (b) If the VALVE CLOSED light comes on, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 964-966

D633W103-ARO

Page 298.371
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Fault Isolation Procedure

- (1) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.

NOTE: These steps do a check to make sure the indicator light has power and is not burned out.

- (a) If only the one VALVE CLOSED light does not come on, then do these steps:
- 1) Release the IND LTS switch.
 - 2) Replace the VALVE CLOSED light (WDM 27-02-51). To replace it, do this task: Integral Panel Light - Annunciator Replacement, AMM TASK 33-13-00-960-803.
 - 3) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
 - 4) If the VALVE CLOSED light does not come on, then do these steps:
 - a) Repair the wiring between pin 1 of connector DL4 (of M27035) and pin 20 of connector DM27035B (WDM 27-02-51).
 - b) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- (b) If none of the six VALVE CLOSED lights come on, then do these steps:
- 1) Release the IND LTS switch.
 - 2) Repair the wiring between pin 1 of connector DL4 (of M27035) and pin 18 of connector DP29C at the P29 panel (WDM 27-02-51) (WDM 33-16-13) (WDM 33-16-15) (WDM 33-16-16).
 - 3) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.
 - 4) If the VALVE CLOSED lights comes on, then you corrected the fault. Release the IND LTS switch.
- (c) If a minimum of one but less than six VALVE CLOSED lights come on, then do these steps:
- 1) Release the IND LTS switch.
 - 2) Replace the flight control hydraulic power panel, M27035 (WDM 27-02-51)
 - 3) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.
 - 4) If the VALVE CLOSED lights comes on, then you corrected the fault. Release the IND LTS switch.
- (d) If the VALVE CLOSED lights comes on, then release the IND LTS switch, and continue.
- (2) Open the flight control hydraulic power panel, M27035, for access to the back of the switch.
- NOTE:** These steps do a check to make sure power gets to the switch.
- (a) Do a check for 28 VDC from terminal 2 (+) of switch S4 (of M27035) to structure ground (WDM 27-02-51).
- (b) If there is not 28 VDC at terminal 2 of switch S4, then do these steps:
- 1) Do a check of the following (WDM 27-02-51):
Check for 28 VDC from terminal 2 (+) of this circuit breaker to structure ground:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	22	C27618	L FC SOV WG

- 2) If there is not 28 VDC at terminal 2 of circuit breaker C27618, then do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK 966

D633W103-ARO

Page 298.372
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) Replace the circuit breaker.
 - b) Close the flight control hydraulic power panel, M27035.
 - c) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- 3) If there is 28 VDC at terminal 2 of circuit breaker C27618, then do these steps:
- a) Repair the wiring between terminal 2 of circuit breaker C27618 and terminal 2 of switch S4 (of M27035).
 - b) Close the flight control hydraulic power panel, M27035.
 - c) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- (c) If there is 28 VDC at terminal 2 of switch S4, then continue.
- (3) Do a check for 28 VDC from terminal 1 (+) of switch S4 (of M27035) to structure ground (WDM 27-02-51).

NOTE: Make sure the switch is in the SHUTOFF position.

- (a) If there is not 28 VDC at terminal 1 of switch S4, then do these steps:

- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	22	C27618	L FC SOV WG

- 2) Replace the switch, S4 of M27035 (WDM 27-02-51).
- 3) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	22	C27618	L FC SOV WG

- 4) Close the flight control hydraulic power panel, M27035.
- 5) Set the FLT CONTROL HYD VALVE POWER switch to the SHUTOFF position.
- a) If the VALVE CLOSED light comes on, then you corrected the fault.
- (b) If there is 28 VDC at terminal 1 of switch S4, then continue.
- (4) Replace the wing shutoff valve for the left hydraulic system, V27100. These are the tasks:
- Hydraulic Shutoff Valve Removal, AMM TASK 27-02-32-000-801
 - Hydraulic Shutoff Valve Installation, AMM TASK 27-02-32-400-801
- (a) Set the FLT CONTROL HYD VALVE POWER switch to the SHUTOFF position.
- 1) Make sure the VALVE CLOSED light comes on.
- (b) Set the FLT CONTROL HYD VALVE POWER switch to the NORM position.
- 1) Make sure the VALVE CLOSED light goes off.
- (c) If the valve closed light operates correctly, then you corrected the fault. Do this step to put the airplane back to its usual condition:
- 1) Close the flight control hydraulic power panel, M27035.
- (d) If the valve closed light does not operate correctly, then continue.
- (5) Set the L FLT CONTROL HYD VALVE POWER switch for the WING to the SHUTOFF position.

EFFECTIVITY
ARO ALL

27-02 TASK 966

D633W103-ARO

Page 298.373
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Look at the wing shutoff valve for the left hydraulic system, V27100, to see the position of its lever.
- (b) If the lever on the valve is in the shutoff (closed) position, then do these steps:
 - 1) Repair the wiring between the connector at the VALVE CLOSED light (DL1 of M27035), the connector at the valve (DV27100), and structure ground (WDM 27-02-51).

DV27100	DL1
pin 10	pin 2

DV27100	Ground
pin 9	GD78-DC

- 2) Close the flight control hydraulic power panel, M27035.
 - 3) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- (c) If the lever on the valve is in the open position, then do these steps:
 - 1) Repair the wiring between the switch (S4 of M27035), the connector at the valve (DV27100), and structure ground (WDM 27-02-51).

DV27100	S4
pin 2	term 1

DV27100	Ground
pin 1	GD78-DC

- 2) Close the flight control hydraulic power panel, M27035.
- 3) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.

————— **END OF TASK** —————

967. Flight Control Hydraulic (R system) Shutoff Valve (Wing) Problems - Fault Isolation

A. Initial Evaluation

- (1) Set the R FLT CONTROL HYD VALVE POWER switch for the WING to the SHUTOFF position.
 - (a) If the VALVE CLOSED light, below the switch, does not come on, then do the Fault Isolation Procedure below.

NOTE: If the valve was deactivated to fly the airplane (per the DDG), then you must remove the lockwire from the valve before you do this fault isolation procedure. To remove the lockwire from the valve, (AMM TASK 27-00-00-440-801).
 - (b) If the VALVE CLOSED light comes on, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.

NOTE: These steps do a check to make sure the indicator light has power and is not burned out.

 - (a) If only the one VALVE CLOSED light does not come on, then do these steps:

EFFECTIVITY
ARO ALL

27-02 TASKS 966-967

D633W103-ARO

Page 298.374
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Release the IND LTS switch.
 - 2) Replace the VALVE CLOSED light (WDM 27-02-53). To replace it, do this task: Integral Panel Light - Annunciator Replacement, AMM TASK 33-13-00-960-803.
 - 3) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
 - 4) If the VALVE CLOSED light does not come on, then do these steps:
 - a) Repair the wiring between pin 1 of connector DL6 (of M27035) and pin 20 of connector DM27035B (WDM 27-02-53).
 - b) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- (b) If none of the six VALVE CLOSED lights come on, then do these steps:
- 1) Release the IND LTS switch.
 - 2) Repair the wiring between pin 1 of connector DL6 (of M27035) and pin 18 of connector DP29C at the P29 panel (WDM 27-02-53) (WDM 33-16-13) (WDM 33-16-15) (WDM 33-16-16).
 - 3) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.
 - 4) If the VALVE CLOSED lights comes on, then you corrected the fault. Release the IND LTS switch.
- (c) If a minimum of one but less than six VALVE CLOSED lights come on, then do these steps:
- 1) Release the IND LTS switch.
 - 2) Replace the flight control hydraulic power panel, M27035 (WDM 27-02-53)
 - 3) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.
 - 4) If the VALVE CLOSED lights comes on, then you corrected the fault. Release the IND LTS switch.
- (d) If the VALVE CLOSED lights comes on, then release the IND LTS switch, and continue.
- (2) Open the flight control hydraulic power panel, M27035, for access to the back of the switch.
- NOTE:** These steps do a check to make sure power gets to the switch.
- (a) Do a check for 28 VDC from terminal 2 (+) of switch S6 (of M27035) to structure ground (WDM 27-02-53).
- (b) If there is not 28 VDC at terminal 2 of switch S6, then do these steps:
- 1) Do the following (WDM 27-02-53):
Check for 28 VDC from terminal 2 (+) of this circuit breaker to structure ground:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	6	C27620	R FC SOV WG

- 2) If there is not 28 VDC at terminal 2 of circuit breaker C27620, then do these steps:
 - a) Replace the circuit breaker.
 - b) Close the flight control hydraulic power panel, M27035.
 - c) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- 3) If there is 28 VDC at terminal 2 of circuit breaker C27620, then do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK 967

D633W103-ARO

Page 298.375
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) Repair the wiring between terminal 2 of circuit breaker C27620 and terminal 2 of switch S6 (of M27035).
 - b) Close the flight control hydraulic power panel, M27035.
 - c) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- (c) If there is 28 VDC at terminal 2 of switch S6, then continue.
- (3) Do a check for 28 VDC from terminal 1 (+) of switch S6 (of M27035) to structure ground (WDM 27-02-53).

NOTE: Make sure the switch is in the SHUTOFF position.

- (a) If there is not 28 VDC at terminal 1 of switch S6, then do these steps:
- 1) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	6	C27620	R FC SOV WG

- 2) Replace the switch, S6 of M27035 (WDM 27-02-53).
- 3) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	6	C27620	R FC SOV WG

- 4) Close the flight control hydraulic power panel, M27035.
 - 5) Set the FLT CONTROL HYD VALVE POWER switch to the SHUTOFF position.
 - a) If the VALVE CLOSED light comes on, then you corrected the fault.
 - (b) If there is 28 VDC at terminal 1 of switch S6, then continue.
- (4) Replace the wing shutoff valve for the right hydraulic system, V27098. These are the tasks:
- Hydraulic Shutoff Valve Removal, AMM TASK 27-02-32-000-801
 - Hydraulic Shutoff Valve Installation, AMM TASK 27-02-32-400-801
- (a) Set the FLT CONTROL HYD VALVE POWER switch to the SHUTOFF position.
 - 1) Make sure the VALVE CLOSED light comes on.
 - (b) Set the FLT CONTROL HYD VALVE POWER switch to the NORM position.
 - 1) Make sure the VALVE CLOSED light goes off.
 - (c) If the valve closed light operates correctly, then you corrected the fault. Do this step to put the airplane back to its usual condition:
 - 1) Close the flight control hydraulic power panel, M27035.
 - (d) If the valve closed light does not operate correctly, then continue.
- (5) Set the R FLT CONTROL HYD VALVE POWER switch for the WING to the SHUTOFF position.
- (a) Look at the wing shutoff valve for the right hydraulic system, V27098, to see the position of its lever.
 - (b) If the lever on the valve is in the shutoff (closed) position, then do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK 967

D633W103-ARO

Page 298.376
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 1) Repair the wiring between the connector at the VALVE CLOSED light (DL6 of M27035), the connector at the valve (DV27098), and structure ground (WDM 27-02-53).

DV27098	DL6
pin 10	pin 2

DV27098	Ground
pin 9	GD80-DC

- 2) Close the flight control hydraulic power panel, M27035.
 - 3) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- (c) If the lever on the valve is in the open position, then do these steps:
- 1) Repair the wiring between the switch (S6 of M27035), the connector at the valve (DV27098), and structure ground (WDM 27-02-53).

DV27098	S6
pin 2	term 1

DV27098	Ground
pin 1	GD80-DC

- 2) Close the flight control hydraulic power panel, M27035.
- 3) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.

———— **END OF TASK** ————

968. Flight Control Hydraulic (L system) Shutoff Valve (Tail) Problems - Fault Isolation

A. Initial Evaluation

- (1) Set the L FLT CONTROL HYD VALVE POWER switch for the TAIL to the SHUTOFF position.
 - (a) If the VALVE CLOSED light, below the switch, does not come on, then do the Fault Isolation Procedure below.

NOTE: If the valve was deactivated to fly the airplane (per the DDG), then you must remove the lockwire from the valve before you do this fault isolation procedure. To remove the lockwire from the valve, (AMM TASK 27-00-00-440-801).
 - (b) If the VALVE CLOSED light comes on, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.

NOTE: These steps do a check to make sure the indicator light has power and is not burned out.

 - (a) If only the one VALVE CLOSED light does not come on, then do these steps:
 - 1) Release the IND LTS switch.
 - 2) Replace the VALVE CLOSED light (WDM 27-02-51). To replace it, do this task: Integral Panel Light - Annunciator Replacement, AMM TASK 33-13-00-960-803.

EFFECTIVITY
ARO ALL

27-02 TASKS 967-968

D633W103-ARO

Page 298.377
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
 - 4) If the VALVE CLOSED light does not come on, then do these steps:
 - a) Repair the wiring between pin 1 of connector DL1 (of M27035) and pin 20 of connector DM27035B (WDM 27-02-51).
 - b) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
 - (b) If none of the six VALVE CLOSED lights come on, then do these steps:
 - 1) Release the IND LTS switch.
 - 2) Repair the wiring between pin 1 of connector DL1 (of M27035) and pin 18 of connector DP29C at the P29 panel (WDM 27-02-51) (WDM 33-16-13) (WDM 33-16-15) (WDM 33-16-16).
 - 3) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.
 - 4) If the VALVE CLOSED lights comes on, then you corrected the fault. Release the IND LTS switch.
 - (c) If a minimum of one but less than six VALVE CLOSED lights come on, then do these steps:
 - 1) Release the IND LTS switch.
 - 2) Replace the flight control hydraulic power panel, M27035 (WDM 27-02-51)
 - 3) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.
 - 4) If the VALVE CLOSED lights comes on, then you corrected the fault. Release the IND LTS switch.
 - (d) If the VALVE CLOSED lights comes on, then release the IND LTS switch, and continue.
- (2) Open the flight control hydraulic power panel, M27035, for access to the back of the switch.

NOTE: These steps do a check to make sure power gets to the switch.

- (a) Do a check for 28 VDC from terminal 2 (+) of switch S1 (of M27035) to structure ground (WDM 27-02-51).
- (b) If there is not 28 VDC at terminal 2 of switch S1, then do these steps:
 - 1) Do the following (WDM 27-02-51):

Check for 28 VDC from terminal 2 (+) of this circuit breaker to structure ground:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	20	C27621	L FC SOV TAIL

- 2) If there is not 28 VDC at terminal 2 of circuit breaker C27621, then do these steps:
 - a) Replace the circuit breaker.
 - b) Close the flight control hydraulic power panel, M27035.
 - c) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- 3) If there is 28 VDC at terminal 2 of circuit breaker C27621, then do these steps:
 - a) Repair the wiring between terminal 2 of circuit breaker C27621 and terminal 2 of switch S1 (of M27035).
 - b) Close the flight control hydraulic power panel, M27035.

EFFECTIVITY
ARO ALL

27-02 TASK 968

D633W103-ARO

Page 298.378
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- c) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- (c) If there is 28 VDC at terminal 2 of switch S1, then continue.
- (3) Do a check for 28 VDC from terminal 1 (+) of switch S1 (of M27035) to structure ground (WDM 27-02-51).

NOTE: Make sure the switch is in the SHUTOFF position.

- (a) If there is not 28 VDC at terminal 1 of switch S1, then do these steps:

- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	20	C27621	L FC SOV TAIL

- 2) Replace the switch, S1 of M27035 (WDM 27-02-51).
- 3) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	20	C27621	L FC SOV TAIL

- 4) Close the flight control hydraulic power panel, M27035.
- 5) Set the FLT CONTROL HYD VALVE POWER switch to the SHUTOFF position.
- a) If the VALVE CLOSED light comes on, then you corrected the fault.
- (b) If there is 28 VDC at terminal 1 of switch S1, then continue.
- (4) Replace the tail shutoff valve for the left hydraulic system, V27101. These are the tasks:
- Hydraulic Shutoff Valve Removal, AMM TASK 27-02-32-000-801
 - Hydraulic Shutoff Valve Installation, AMM TASK 27-02-32-400-801
- (a) Set the FLT CONTROL HYD VALVE POWER switch to the SHUTOFF position.
- 1) Make sure the VALVE CLOSED light comes on.
- (b) Set the FLT CONTROL HYD VALVE POWER switch to the NORM position.
- 1) Make sure the VALVE CLOSED light goes off.
- (c) If the valve closed light operates correctly, then you corrected the fault. Do this step to put the airplane back to its usual condition:
- 1) Close the flight control hydraulic power panel, M27035.
- (d) If the valve closed light does not operate correctly, then continue.
- (5) Set the L FLT CONTROL HYD VALVE POWER switch for the TAIL to the SHUTOFF position.
- (a) Look at the tail shutoff valve for the left hydraulic system, V27101, to see the position of its lever.
- (b) If the lever on the valve is in the shutoff (closed) position, then do these steps:
- 1) Repair the wiring between the connector at the VALVE CLOSED light (DL1 of M27035), the connector at the valve (DV27101), and structure ground (WDM 27-02-51).

EFFECTIVITY
ARO ALL

27-02 TASK 968

D633W103-ARO

Page 298.379
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) Repair the wiring between pin 1 of connector DL3 (of M27035) and pin 20 of connector DM27035B (WDM 27-02-53).
- b) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- (b) If none of the six VALVE CLOSED lights come on, then do these steps:
 - 1) Release the IND LTS switch.
 - 2) Repair the wiring between pin 1 of connector DL3 (of M27035) and pin 18 of connector DP29C at the P29 panel (WDM 27-02-53) (WDM 33-16-13) (WDM 33-16-15) (WDM 33-16-16).
 - 3) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.
 - 4) If the VALVE CLOSED lights comes on, then you corrected the fault. Release the IND LTS switch.
- (c) If a minimum of one but less than six VALVE CLOSED lights come on, then do these steps:
 - 1) Release the IND LTS switch.
 - 2) Replace the flight control hydraulic power panel, M27035 (WDM 27-02-53)
 - 3) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.
 - 4) If the VALVE CLOSED lights comes on, then you corrected the fault. Release the IND LTS switch.
- (d) If the VALVE CLOSED lights comes on, then release the IND LTS switch, and continue.
- (2) Open the flight control hydraulic power panel, M27035, for access to the back of the switch.

NOTE: These steps do a check to make sure power gets to the switch.

- (a) Do a check for 28 VDC from terminal 2 (+) of switch S3 (of M27035) to structure ground (WDM 27-02-53).
- (b) If there is not 28 VDC at terminal 2 of switch S3, then do these steps:
 - 1) Do the following (WDM 27-02-53):

Check for 28 VDC from terminal 2 (+) of this circuit breaker to structure ground:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	7	C27623	R FC SOV TAIL

- 2) If there is not 28 VDC at terminal 2 of circuit breaker C27623, then do these steps:
 - a) Replace the circuit breaker.
 - b) Close the flight control hydraulic power panel, M27035.
 - c) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- 3) If there is 28 VDC at terminal 2 of circuit breaker C27623, then do these steps:
 - a) Repair the wiring between terminal 2 of circuit breaker C27623 and terminal 2 of switch S3 (of M27035).
 - b) Close the flight control hydraulic power panel, M27035.
 - c) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- (c) If there is 28 VDC at terminal 2 of switch S3, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK 969

D633W103-ARO

Page 298.381
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (3) Do a check for 28 VDC from terminal 1 (+) of switch S3 (of M27035) to structure ground (WDM 27-02-53).

NOTE: Make sure the switch is in the SHUTOFF position.

- (a) If there is not 28 VDC at terminal 1 of switch S3, then do these steps:

- 1) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	7	C27623	R FC SOV TAIL

- 2) Replace the switch, S3 of M27035 (WDM 27-02-53).

- 3) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	7	C27623	R FC SOV TAIL

- 4) Close the flight control hydraulic power panel, M27035.

- 5) Set the FLT CONTROL HYD VALVE POWER switch to the SHUTOFF position.

- a) If the VALVE CLOSED light comes on, then you corrected the fault.

- (b) If there is 28 VDC at terminal 1 of switch S3, then continue.

- (4) Replace the tail shutoff valve for the right hydraulic system, V27102. These are the tasks:

- Hydraulic Shutoff Valve Removal, AMM TASK 27-02-32-000-801
- Hydraulic Shutoff Valve Installation, AMM TASK 27-02-32-400-801

- (a) Set the FLT CONTROL HYD VALVE POWER switch to the SHUTOFF position.

- 1) Make sure the VALVE CLOSED light comes on.

- (b) Set the FLT CONTROL HYD VALVE POWER switch to the NORM position.

- 1) Make sure the VALVE CLOSED light goes off.

- (c) If the valve closed light operates correctly, then you corrected the fault. Do this step to put the airplane back to its usual condition:

- 1) Close the flight control hydraulic power panel, M27035.

- (d) If the valve closed light does not operate correctly, then continue.

- (5) Set the R FLT CONTROL HYD VALVE POWER switch for the TAIL to the SHUTOFF position.

- (a) Look at the tail shutoff valve for the right hydraulic system, V27102, to see the position of its lever.

- (b) If the lever on the valve is in the shutoff (closed) position, then do these steps:

- 1) Repair the wiring between the connector at the VALVE CLOSED light (DL3 of M27035), the connector at the valve (DV27102), and structure ground (WDM 27-02-53).

DV27102	DL3
pin 10	pin 2

DV27102	Ground
pin 9	GD45111-DC

EFFECTIVITY
ARO ALL

27-02 TASK 969

D633W103-ARO

Page 298.382
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Close the flight control hydraulic power panel, M27035.
- 3) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- (c) If the lever on the valve is in the open position, then do these steps:
 - 1) Repair the wiring between the switch (S3 of M27035), the connector at the valve (DV27102), and structure ground (WDM 27-02-53).

DV27102	S3
pin 2	term 1

DV27102	Ground
pin 1	GD45111-DC

- 2) Close the flight control hydraulic power panel, M27035.
- 3) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.

————— **END OF TASK** —————

970. Flight Control Hydraulic (C system) Shutoff Valve (Tail) Problems - Fault Isolation

A. Initial Evaluation

- (1) Set the C FLT CONTROL HYD VALVE POWER switch for the TAIL to the SHUTOFF position.
 - (a) If the VALVE CLOSED light, below the switch, does not come on, then do the Fault Isolation Procedure below.

NOTE: If the valve was deactivated to fly the airplane (per the DDG), then you must remove the lockwire from the valve before you do this fault isolation procedure. To remove the lockwire from the valve, (AMM TASK 27-00-00-440-801).

NOTE: The two shutoff valves for the center hydraulic system are operated through air/ground relays. These valves will not close if the airplane is in the air.
 - (b) If the VALVE CLOSED light comes on, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.

NOTE: These steps do a check to make sure the indicator light has power and is not burned out.

 - (a) If only the one VALVE CLOSED light does not come on, then do these steps:
 - 1) Release the IND LTS switch.
 - 2) Replace the VALVE CLOSED light (WDM 27-02-55). To replace it, do this task: Integral Panel Light - Annunciator Replacement, AMM TASK 33-13-00-960-803.
 - 3) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
 - 4) If the VALVE CLOSED light does not come on, then do these steps:
 - a) Repair the wiring between pin 1 of connector DL2 (of M27035) and pin 20 of connector DM27035B (WDM 27-02-55).
 - b) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 969-970

D633W103-ARO

Page 298.383
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (b) If none of the six VALVE CLOSED lights come on, then do these steps:
- 1) Release the IND LTS switch.
 - 2) Repair the wiring between pin 1 of connector DL2 (of M27035) and pin 18 of connector DP29C at the P29 panel (WDM 27-02-55) (WDM 33-16-13) (WDM 33-16-15) (WDM 33-16-16).
 - 3) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.
 - 4) If the VALVE CLOSED lights comes on, then you corrected the fault. Release the IND LTS switch.
- (c) If a minimum of one but less than six VALVE CLOSED lights come on, then do these steps:
- 1) Release the IND LTS switch.
 - 2) Replace the flight control hydraulic power panel, M27035 (WDM 27-02-55)
 - 3) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.
 - 4) If the VALVE CLOSED lights comes on, then you corrected the fault. Release the IND LTS switch.
- (d) If all of the VALVE CLOSED lights come on, then release the IND LTS switch, and continue.
- (2) Do these steps to find if power gets to the valve:
- (a) Disconnect connector DV27103 from the tail shutoff valve, V27103.
- NOTE: The shutoff valves for the center hydraulic system are on the aft bulkhead of the left wheel well. The tail shutoff valve is above the wing shutoff valve.
- (b) Do a check for 28 VDC from pin 2 (+) of connector DV27103 to structure ground.
- (c) If there is 28 VDC at pin 2 of DV27103, then do these steps:
- 1) Replace the tail shutoff valve for the center hydraulic system, V27103. These are the tasks:
 - Hydraulic Shutoff Valve Removal, AMM TASK 27-02-32-000-801
 - Hydraulic Shutoff Valve Installation, AMM TASK 27-02-32-400-801
 - 2) Set the FLT CONTROL HYD VALVE POWER switch to the SHUTOFF position.
 - a) Make sure the VALVE CLOSED light comes on.
 - 3) Set the FLT CONTROL HYD VALVE POWER switch to the NORM position.
 - a) Make sure the VALVE CLOSED light goes off.
 - 4) If the valve closed light operates correctly, then you corrected the fault.
 - 5) If the valve closed light does not operate correctly, then continue.
 - 6) Repair the wiring between the connector at the VALVE CLOSED light (DL2 of M27035), the connector at the valve (DV27103), and structure ground (WDM 27-02-55).

DV27103	DL2
pin 10	pin 2

DV27103	Ground
pin 9	GD45090-DC
pin 1	GD45090-DC

EFFECTIVITY
ARO ALL

27-02 TASK 970

D633W103-ARO

Page 298.384
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) If there is not 28 VDC at pin 2 of DV27103, then continue.
- (3) Do these steps to find if power gets to the switch:
- Open the flight control hydraulic power panel, M27035, for access to the back of the switch.
 - Do a check for 28 VDC from terminal 2 (+) of switch S2 (of M27035) to structure ground (WDM 27-02-55).
 - If there is not 28 VDC at terminal 2 of switch S2, then do these steps:
 - Do the following (WDM 27-02-55):
Check for 28 VDC from terminal 2 (+) of this circuit breaker to structure ground:
Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL
 - If there is not 28 VDC at terminal 2 of circuit breaker C27622, then do these steps:
 - Replace the circuit breaker.
 - Close the flight control hydraulic power panel, M27035.
 - If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
 - If there is 28 VDC at terminal 2 of circuit breaker C27622, then do these steps:
 - Repair the wiring between terminal 2 of circuit breaker C27622 and terminal 2 of switch S2 (of M27035).
 - Close the flight control hydraulic power panel, M27035.
 - If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
 - If there is 28 VDC at terminal 2 of switch S2, then continue.
- (4) Do a check for 28 VDC from terminal 1 (+) of switch S2 (of M27035) to structure ground (WDM 27-02-55).

NOTE: Make sure the switch is in the SHUTOFF position.

- (a) If there is not 28 VDC at terminal 1 of switch S2, then do these steps:
- Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL

- Replace the switch, S2 of M27035 (WDM 27-02-55).
- Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL

- Close the flight control hydraulic power panel, M27035.
- Set the FLT CONTROL HYD VALVE POWER switch to the SHUTOFF position.

EFFECTIVITY
ARO ALL

27-02 TASK 970

D633W103-ARO

Page 298.385
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the VALVE CLOSED light comes on, then you corrected the fault.
- (b) If there is 28 VDC at terminal 1 of switch S2, then continue.
- (5) Do these steps to find if the air/ground relays are operating correctly:
NOTE: At this point, we know the problem is in the wiring between the switch and the valve, or in the air/ground system.
- (a) Do this task: Air Mode Simulation - Preparation, AMM TASK 32-09-00-040-801.
- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL
L	25	C28621	L FUEL JETT NOZ VLV

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- 1) Remove the air/ground relay K32119, from the left power management panel, P110 (WDM 27-02-55) (WDM 32-09-15).
- 2) Install a jumper wire from pin A2 to pin A1 of connector DK32119 (the connector for the relay).
- (c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL

- (d) Set the C FLT CONTROL HYD VALVE POWER switch for the TAIL to the SHUTOFF position.
- (e) If the VALVE CLOSED light does not come on, then do these steps:
NOTE: At this point, we know the problem is in the wiring between the switch and the valve. The jumper wire we installed disconnects the air/ground system from the valve wiring.

- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL

- 2) Remove the jumper wire from pin A2 to pin A1 of connector DK32119.
- 3) Repair the wiring between the switch (S2 of M27035), the relay (K32119), and the connector at the valve (DV27103) (WDM 27-02-55).

S2	DK32119
pin 1	pin A2

DK32119	DV27103
pin A1	pin 2

EFFECTIVITY
ARO ALL

27-02 TASK 970

D633W103-ARO

Page 298.386
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Re-install the air/ground relay K32119 (WDM 27-02-55) (WDM 32-09-15).
- 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL
L	25	C28621	L FUEL JETT NOZ VLV

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- 6) Do this task: Air Mode Simulation - Restoration, AMM TASK 32-09-00-440-801.
 - 7) Close the flight control hydraulic power panel, M27035.
 - 8) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- (f) If the VALVE CLOSED light comes on, then continue.
- (6) Do these steps to correct the problem in the air/ground system:
- NOTE:** At this point, we know the problem is in the relays or wiring in the air/ground system.
- (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL

- 1) Remove the jumper wire from pin A2 to pin A1 of connector DK32119.
 - 2) Install a new air/ground relay K32119, in the left power management panel, P110 (WDM 27-02-55) (WDM 32-09-15).
- (b) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- (c) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- 1) Do these steps to put the airplane back to its usual condition:
 - a) Do this task: Air Mode Simulation - Restoration, AMM TASK 32-09-00-440-801.
 - b) Close the flight control hydraulic power panel, M27035.
- (d) If the VALVE CLOSED light does not come on, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK 970

D633W103-ARO

Page 298.387
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (e) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- 1) Replace the air/ground relay K32104, in the left power management panel, P110 (WDM 32-09-15).

- (f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- (g) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.

- 1) Do these steps to put the airplane back to its usual condition:
- Do this task: Air Mode Simulation - Restoration, AMM TASK 32-09-00-440-801.
 - Close the flight control hydraulic power panel, M27035.

- (h) If the VALVE CLOSED light does not come on, then continue.

- (i) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	19	C27622	C FC SOV TAIL

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- (j) Repair the wiring between the relay K32119, the relay K32104, power (circuit breaker C32628), and structure ground (WDM 32-09-14) (WDM 32-09-15).

NOTE: We do not do a check of the wiring to the coil of relay K32104. If this wiring has a problem, it would have an effect on a number of systems and would cause EICAS messages.

DK32104	DK32119
pin C1	pin X2

EFFECTIVITY
ARO ALL

27-02 TASK 970

D633W103-ARO

Page 298.388
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

972. Flight Control Maintenance Page Problems - Fault Isolation

A. Initial Evaluation

- (1) If "PFC MODE NORMAL" shows on the Flight Controls maintenance page (page 1) when the PRIMARY FLIGHT COMPUTERS disconnect switch is in the DISC position, then do these steps:
 - (a) Look at the synoptic page for the primary flight controls. To show this page, do this task: Showing a System Synoptic Page, AMM TASK 31-61-00-800-816.
 - (b) If the synoptic page shows "DIRECT" for the "FLT CTRL MODE", then the indication on the maintenance page is incorrect. There is nothing for you to repair.
- (2) If an "X" shows adjacent to the "RUD TRIM" "POSITION 2" indication on the Flight Controls maintenance page (page 1), ignore the "X". This is nuisance fault. If the transducer has a problem, then a maintenance message will occur.

————— END OF TASK —————

973. Flight Control Hydraulic (C system) Shutoff Valve (Wing) Problems - Fault Isolation

A. Initial Evaluation

- (1) Set the C FLT CONTROL HYD VALVE POWER switch for the WING to the SHUTOFF position.
 - (a) If the VALVE CLOSED light, below the switch, does not come on, then do the Fault Isolation Procedure below.

NOTE: If the valve was deactivated to fly the airplane (per the DDG), then you must remove the lockwire from the valve before you do this fault isolation procedure. To remove the lockwire from the valve, (AMM TASK 27-00-00-440-801).

NOTE: The two shutoff valves for the center hydraulic system are operated through air/ground relays. These valves will not close if the airplane is in the air.
 - (b) If the VALVE CLOSED light comes on, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.

NOTE: These steps do a check to make sure the indicator light has power and is not burned out.

 - (a) If only the one VALVE CLOSED light does not come on, then do these steps:
 - 1) Release the IND LTS switch.
 - 2) Replace the VALVE CLOSED light (WDM 27-02-55). To replace it, do this task: Integral Panel Light - Annunciator Replacement, AMM TASK 33-13-00-960-803.
 - 3) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
 - 4) If the VALVE CLOSED light does not come on, then do these steps:
 - a) Repair the wiring between pin 1 of connector DL5 (of M27035) and pin 20 of connector DM27035B (WDM 27-02-55).
 - b) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
 - (b) If none of the six VALVE CLOSED lights come on, then do these steps:
 - 1) Release the IND LTS switch.

EFFECTIVITY
ARO ALL

27-02 TASKS 972-973

D633W103-ARO

Page 298.390
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Repair the wiring between pin 1 of connector DL5 (of M27035) and pin 18 of connector DP29C at the P29 panel (WDM 27-02-55) (WDM 33-16-13) (WDM 33-16-15) (WDM 33-16-16).
 - 3) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.
 - 4) If the VALVE CLOSED lights comes on, then you corrected the fault. Release the IND LTS switch.
- (c) If a minimum of one but less than six VALVE CLOSED lights come on, then do these steps:
- 1) Release the IND LTS switch.
 - 2) Replace the flight control hydraulic power panel, M27035 (WDM 27-02-55)
 - 3) On the overhead panel, P5, set and hold the IND LTS switch in the TEST position.
 - 4) If the VALVE CLOSED lights comes on, then you corrected the fault. Release the IND LTS switch.
- (d) If all of the VALVE CLOSED lights come on, then release the IND LTS switch, and continue.
- (2) Do these steps to find if power gets to the valve:
- (a) Disconnect connector DV27099 from the wing shutoff valve, V27099.
- NOTE:** The shutoff valves for the center hydraulic system are on the aft bulkhead of the left wheel well. The tail shutoff valve is above the wing shutoff valve.
- (b) Do a check for 28 VDC from pin 2 (+) of connector DV27099 to structure ground.
- (c) If there is 28 VDC at pin 2 of DV27099, then do these steps:
- 1) Replace the wing shutoff valve for the center hydraulic system, V27099. These are the tasks:
 - Hydraulic Shutoff Valve Removal, AMM TASK 27-02-32-000-801
 - Hydraulic Shutoff Valve Installation, AMM TASK 27-02-32-400-801
 - 2) Set the FLT CONTROL HYD VALVE POWER switch to the SHUTOFF position.
 - a) Make sure the VALVE CLOSED light comes on.
 - 3) Set the FLT CONTROL HYD VALVE POWER switch to the NORM position.
 - a) Make sure the VALVE CLOSED light goes off.
 - 4) If the valve closed light operates correctly, then you corrected the fault.
 - 5) If the valve closed light does not operate correctly, then continue.
 - 6) Repair the wiring between the connector at the VALVE CLOSED light (DL5 of M27035), the connector at the valve (DV27099), and structure ground (WDM 27-02-55).

DV27099	DL5
pin 10	pin 2

DV27099	Ground
pin 9	GD45090-DC
pin 1	GD45090-DC

- (d) If there is not 28 VDC at pin 2 of DV27099, then continue.
- (3) Do these steps to find if power gets to the switch:

EFFECTIVITY
ARO ALL

27-02 TASK 973

D633W103-ARO

Page 298.391
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open the flight control hydraulic power panel, M27035, for access to the back of the switch.
- (b) Do a check for 28 VDC from terminal 2 (+) of switch S5 (of M27035) to structure ground (WDM 27-02-55).
- (c) If there is not 28 VDC at terminal 2 of switch S5, then do these steps:

- 1) Do the following (WDM 27-02-55):

- a) Check for 28 VDC from terminal 2 (+) of this circuit breaker to structure ground:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

- 2) If there is not 28 VDC at terminal 2 of circuit breaker C27619, then do these steps:

- a) Replace the circuit breaker.
- b) Close the flight control hydraulic power panel, M27035.
- c) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.

- 3) If there is 28 VDC at terminal 2 of circuit breaker C27619, then do these steps:

- a) Repair the wiring between terminal 2 of circuit breaker C27619 and terminal 2 of switch S5 (of M27035).
- b) Close the flight control hydraulic power panel, M27035.
- c) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.

- (d) If there is 28 VDC at terminal 2 of switch S5, then continue.

- (4) Do a check for 28 VDC from terminal 1 (+) of switch S5 (of M27035) to structure ground (WDM 27-02-55).

NOTE: Make sure the switch is in the SHUTOFF position.

- (a) If there is not 28 VDC at terminal 1 of switch S5, then do these steps:

- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

- 2) Replace the switch, S5 of M27035 (WDM 27-02-55).

- 3) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

- 4) Close the flight control hydraulic power panel, M27035.

- 5) Set the FLT CONTROL HYD VALVE POWER switch to the SHUTOFF position.

- a) If the VALVE CLOSED light comes on, then you corrected the fault.

- (b) If there is 28 VDC at terminal 1 of switch S5, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK 973

D633W103-ARO

Page 298.392
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (5) Do these steps to find if the air/ground relays are operating correctly:

NOTE: At this point, we know the problem is in the wiring between the switch and the valve, or in the air/ground system.

- (a) Do this task: Air Mode Simulation - Preparation, AMM TASK 32-09-00-040-801.
(b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- 1) Remove the air/ground relay K32120, from the left power management panel, P110 (WDM 27-02-55) (WDM 32-09-15).
 - 2) Install a jumper wire from pin A2 to pin A1 of connector DK32120 (the connector for the relay).
- (c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

- (d) Set the C FLT CONTROL HYD VALVE POWER switch for the WING to the SHUTOFF position.
- (e) If the VALVE CLOSED light does not come on, then do these steps:

NOTE: At this point, we know the problem is in the wiring between the switch and the valve. The jumper wire we installed disconnects the air/ground system from the valve wiring.

- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

- 2) Remove the jumper wire from pin A2 to pin A1 of connector DK32120.
- 3) Repair the wiring between the switch (S5 of M27035), the relay (K32120), and the connector at the valve (DV27099) (WDM 27-02-55).

S5	DK32120
pin 1	pin A2

DK32120	DV27099
pin A1	pin 2

- 4) Re-install the air/ground relay K32120 (WDM 27-02-55) (WDM 32-09-15).

EFFECTIVITY
ARO ALL

27-02 TASK 973

D633W103-ARO

Page 298.393
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- 6) Do this task: Air Mode Simulation - Restoration, AMM TASK 32-09-00-440-801.
7) Close the flight control hydraulic power panel, M27035.
8) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.

(f) If the VALVE CLOSED light comes on, then continue.

- (6) Do these steps to correct the problem in the air/ground system:

NOTE: At this point, we know the problem is in the relays or wiring in the air/ground system.

- (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

- 1) Remove the jumper wire from pin A2 to pin A1 of connector DK32120.
2) Install a new air/ground relay K32120, in the left power management panel, P110 (WDM 27-02-55) (WDM 32-09-15).

- (b) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- (c) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.

- 1) Do these steps to put the airplane back to its usual condition:
a) Do this task: Air Mode Simulation - Restoration, AMM TASK 32-09-00-440-801.
b) Close the flight control hydraulic power panel, M27035.

- (d) If the VALVE CLOSED light does not come on, then continue.

- (e) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

EFFECTIVITY
ARO ALL

27-02 TASK 973

D633W103-ARO

Page 298.394
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- 1) Replace the air/ground relay K32104, in the left power management panel, P110 (WDM 32-09-15).

- (f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- (g) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.

- 1) Do these steps to put the airplane back to its usual condition:
 - a) Do this task: Air Mode Simulation - Restoration, AMM TASK 32-09-00-440-801.
 - b) Close the flight control hydraulic power panel, M27035.

- (h) If the VALVE CLOSED light does not come on, then continue.

- (i) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- (j) Repair the wiring between the relay K32120, the relay K32104, power (circuit breaker C32628), and structure ground (WDM 32-09-14) (WDM 32-09-15).

NOTE: We do not do a check of the wiring to the coil of relay K32104. If this wiring has a problem, it would have an effect on a number of systems and would cause EICAS messages.

DK32104	DK32120
pin C1	pin X2

DK32104	Ground
pin C2	Ground

DK32120	C32628
pin X1	term 1

EFFECTIVITY
ARO ALL

27-02 TASK 973

D633W103-ARO

Page 298.395
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (k) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	21	C27619	C FC SOV WG

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	13	C32628	AIR/GROUND 1

- (l) If the VALVE CLOSED light comes on (when the switch is in the SHUTOFF position), then you corrected the fault.
- 1) Do these steps to put the airplane back to its usual condition:
 - a) Do this task: Air Mode Simulation - Restoration, AMM TASK 32-09-00-440-801.
 - b) Close the flight control hydraulic power panel, M27035.
 - 2) To put the airplane back to its usual condition, do this task: Air Mode Simulation - Restoration, AMM TASK 32-09-00-440-801.

— END OF TASK —

974. PFCs Have No Input On Flight Controls ARINC 629 Bus (left) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19101.

B. Initial Evaluation

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data on the bus. Thus, replacing a PFC will not correct this problem.

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for a maintenance message (ATA system 23) related to a bus failure for the left flight controls bus.
 - (a) If you find a maintenance message for a bus failure, then do these steps:
 - 1) Find the maintenance message in the FIM Maintenance Message Index.
 - 2) Do the specified task.
 - (b) If you do not find a maintenance message for the flight controls bus, then continue.
- (2) Do this ground test on the MAT to clear the maintenance message:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset Test.

— END OF TASK —

975. PFCs Have No Input From Left AIMS On Flight Controls ARINC 629 Bus (left) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19104.

B. Initial Evaluation

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data from the left AIMS. Thus, replacing a PFC will not correct this problem.

EFFECTIVITY
ARO ALL

27-02 TASKS 973-975

D633W103-ARO

Page 298.396
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for a maintenance message (ATA system 31) related to left AIMS problems.
 - (a) If you find a maintenance message for an AIMS problem, then do these steps:
 - 1) Find the maintenance message in the FIM Maintenance Message Index.
 - 2) Do the specified task.
 - (b) If you do not find a maintenance message for an AIMS problem, then continue.
- (2) Do this ground test on the MAT to clear the maintenance message:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset Test.

————— END OF TASK —————

976. PFCs Have No Input From The ADIRU On Flight Controls ARINC 629 Bus (left) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19110.

B. Fault Isolation Procedure

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data from the ADIRU on the left bus. Thus, replacing a PFC will not correct this problem.

- (1) Replace the air data inertial reference unit, M34001. These are the tasks:
 - Air Data Inertial Reference Unit - Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801

————— END OF TASK —————

977. PFCs Have No Input From The Left AFDC On Flight Controls ARINC 629 Bus (left) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19116.

B. Initial Evaluation

- (1) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data from the left AFDC. Thus, replacing a PFC will not correct this problem.

- (1) Replace ARINC current-mode coupler B22101, in the P112 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the left AFDC to the Flight Controls 629 Bus-L.

- (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASKS 975-977

D633W103-ARO

Page 298.397
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (2) Replace the left autopilot flight director computer (AFDC-L), M22101. These are the tasks:
- Autopilot Flight Director Computer Removal, AMM TASK 22-11-01-000-801
 - Autopilot Flight Director Computer Installation, AMM TASK 22-11-01-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (3) Do these steps to correct the wiring problem between the coupler and the AFDC-L.
- (a) Remove the AFDC-L, M22101, do this task: Autopilot Flight Director Computer Removal, AMM TASK 22-11-01-000-801.
 - (b) Disconnect connector DB22101 from the current-mode coupler B22101.
 - (c) Do a wiring check between these contacts of connector DM22101AB (for the AFDC) and connector DB22101 (for the coupler) (WDM 22-11-18):

DM22101AB	DB22101
pin 6T	pin 2
pin 6TR	pin 1
pin 3T	pin 5
pin 3TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install the AFDC-L, M22101, do this task: Autopilot Flight Director Computer Installation, AMM TASK 22-11-01-400-801.
 - 3) Re-connect connector DB22101 to the current-mode coupler B22101.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

978. PFCs Have No Input From The Left PSA On Flight Controls ARINC 629 Bus (left) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19128.

B. Initial Evaluation

- (1) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Transmitter Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS 977-978

D633W103-ARO

Page 298.398
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
- (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data from the left PSA. Thus, replacing a PFC will not correct this problem.

- (1) Replace ARINC current-mode coupler B24101, in the P112 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the left PSA to the Flight Controls 629 Bus-L.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 2) If the maintenance message does not show on the MAT, then you corrected the fault.
- 3) If the maintenance message shows on the MAT, then continue.

- (2) Replace the left power supply assembly (PSA-L), M24101. These are the tasks:

- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
- Power Supply Assembly Installation, AMM TASK 24-35-01-400-801

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 2) If the maintenance message does not show on the MAT, then you corrected the fault.
- 3) If the maintenance message shows on the MAT, then continue.

- (3) Do these steps to correct the wiring problem between the coupler and the PSA-L.

- (a) Remove the PSA-L, M24101, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (b) Disconnect connector DB24101 from the current-mode coupler B24101.
- (c) Do a wiring check between these contacts of connector DM24101AA (for the PSA) and connector DB24101 (for the coupler) (WDM 24-35-11):

DM24101AA	DB24101
pin 4T	pin 2
pin 4TR	pin 1
pin 1T	pin 5
pin 1TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the ARINC 629 wiring (SWPM 20-11-11).
- 2) Re-install the PSA-L, M24101, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 3) Re-connect connector DB24101 to the current-mode coupler B24101.

EFFECTIVITY
ARO ALL

27-02 TASK 978

D633W103-ARO

Page 298.399
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 5) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

979. PFCs Have No Input On Flight Controls ARINC 629 Bus (center) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19201.

B. Initial Evaluation

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data on the bus. Thus, replacing a PFC will not correct this problem.

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for a maintenance message (ATA system 23) related to a bus failure for the center flight controls bus.
 - (a) If you find a maintenance message for a bus failure, then do these steps:
 - 1) Find the maintenance message in the FIM Maintenance Message Index.
 - 2) Do the specified task.
 - (b) If you do not find a maintenance message for the flight controls bus, then continue.
- (2) Do this ground test on the MAT to clear the maintenance message:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset Test.

————— END OF TASK —————

980. PFCs Have No Input From The Center AFDC On Flight Controls ARINC 629 Bus (center) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19219.

B. Initial Evaluation

- (1) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data from the center AFDC. Thus, replacing a PFC will not correct this problem.

- (1) Replace ARINC current-mode coupler B22303, in the P312 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS 978-980

D633W103-ARO

Page 298.400
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the center AFDC to the Flight Controls 629 Bus-C.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (2) Replace the center autopilot flight director computer (AFDC-C), M22301. These are the tasks:
 - Autopilot Flight Director Computer Removal, AMM TASK 22-11-01-000-801
 - Autopilot Flight Director Computer Installation, AMM TASK 22-11-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (3) Do these steps to correct the wiring problem between the coupler and the AFDC-C.
 - (a) Remove the AFDC-C, M22301, do this task: Autopilot Flight Director Computer Removal, AMM TASK 22-11-01-000-801.
 - (b) Disconnect connector DB22303 from the current-mode coupler B22303.
 - (c) Do a wiring check between these contacts of connector DM22301AB (for the AFDC) and connector DB22303 (for the coupler) (WDM 22-11-18):

DM22301AB	DB22303
pin 6T	pin 2
pin 6TR	pin 1
pin 3T	pin 5
pin 3TR	pin 4
- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install the AFDC-C, M22301, do this task: Autopilot Flight Director Computer Installation, AMM TASK 22-11-01-400-801.
 - 3) Re-connect connector DB22303 to the current-mode coupler B22303.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

981. PFCs Have No Input From The Center PSA On Flight Controls ARINC 629 Bus (center) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19231.

EFFECTIVITY
ARO ALL

27-02 TASKS 980-981

D633W103-ARO

Page 298.401
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data from the center PSA. Thus, replacing a PFC will not correct this problem.

- (1) Replace ARINC current-mode coupler B24301, in the P312 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the center PSA to the Flight Controls 629 Bus-C.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (2) Replace the center power supply assembly (PSA-C), M24301. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (3) Do these steps to correct the wiring problem between the coupler and the PSA-C.
 - (a) Remove the PSA-C, M24301, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Disconnect connector DB24301 from the current-mode coupler B24301.
 - (c) Do a wiring check between these contacts of connector DM24301AA (for the PSA) and connector DB24301 (for the coupler) (WDM 24-35-31):

DM24301AA	DB24301
pin 4T	pin 2
pin 4TR	pin 1
pin 1T	pin 5
pin 1TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK 981

D633W103-ARO

Page 298.402
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the ARINC 629 wiring (SWPM 20-11-11).
- 2) Re-install the PSA-C, M24301, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 3) Re-connect connector DB24301 to the current-mode coupler B24301.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

982. PFCs Have No Input From The SAARU On Flight Controls ARINC 629 Bus (center) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19237.

B. Initial Evaluation

- (1) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data from the SAARU. Thus, replacing a PFC will not correct this problem.

- (1) Replace ARINC current-mode coupler B34303, in the P312 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the SAARU to the Flight Controls 629 Bus-C.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (2) Replace the secondary attitude air data reference unit (SAARU), M34002. These are the tasks:
 - Secondary Attitude Air Data Reference Unit Removal, AMM TASK 34-21-02-000-801
 - Secondary Attitude Air Data Reference Unit Installation, AMM TASK 34-21-02-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.

EFFECTIVITY
ARO ALL

27-02 TASKS 981-982

D633W103-ARO

Page 298.403
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Do these steps to correct the wiring problem between the coupler and the SAARU.
- (a) Remove the SAARU, M34002, do this task: Secondary Attitude Air Data Reference Unit Removal, AMM TASK 34-21-02-000-801.
 - (b) Disconnect connector DB34303 from the current-mode coupler B34303.
 - (c) Do a wiring check between these contacts of connector DM34002 (for the SAARU) and connector DB34303 (for the coupler) (WDM 34-21-21):

DM34002	DB34303
pin 9T	pin 2
pin 9R	pin 1
pin 6T	pin 5
pin 6R	pin 4

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install the SAARU, M34002, do this task: Secondary Attitude Air Data Reference Unit Installation, AMM TASK 34-21-02-400-801.
 - 3) Re-connect connector DB34303 to the current-mode coupler B34303.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

983. PFCs Have No Input On Flight Controls ARINC 629 Bus (right) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19301.

B. Initial Evaluation

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data on the bus. Thus, replacing a PFC will not correct this problem.

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for a maintenance message (ATA system 23) related to a bus failure for the right flight controls bus.
 - (a) If you find a maintenance message for a bus failure, then do these steps:
 - 1) Find the maintenance message in the FIM Maintenance Message Index.
 - 2) Do the specified task.
 - (b) If you do not find a maintenance message for the flight controls bus, then continue.
- (2) Do this ground test on the MAT to clear the maintenance message:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset Test.

————— END OF TASK —————

984. PFCs Have No Input From Right AIMS On Flight Controls ARINC 629 Bus (right) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19307.

EFFECTIVITY
ARO ALL

27-02 TASKS 982-984

D633W103-ARO

Page 298.404
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data from the right AIMS. Thus, replacing a PFC will not correct this problem.

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for a maintenance message (ATA system 31) related to right AIMS problems.
 - (a) If you find a maintenance message for an AIMS problem, then do these steps:
 - 1) Find the maintenance message in the FIM Maintenance Message Index.
 - 2) Do the specified task.
 - (b) If you do not find a maintenance message for an AIMS problem, then continue.
- (2) Do this ground test on the MAT to clear the maintenance message:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset Test.

————— END OF TASK —————

985. PFCs Have No Input From The ADIRU On Flight Controls ARINC 629 Bus (right) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19310.

B. Fault Isolation Procedure

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data from the ADIRU on the right bus. Thus, replacing a PFC will not correct this problem.

- (1) Replace the air data inertial reference unit, M34001. These are the tasks:
 - Air Data Inertial Reference Unit - Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

986. PFCs Have No Input From The Right AFDC On Flight Controls ARINC 629 Bus (right) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19322.

B. Initial Evaluation

- (1) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 984-986

D633W103-ARO

Page 298.405
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data from the right AFDC. Thus, replacing a PFC will not correct this problem.

- (1) Replace ARINC current-mode coupler B22202, in the P212 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the right AFDC to the Flight Controls 629 Bus-R.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 2) If the maintenance message does not show on the MAT, then you corrected the fault.
- 3) If the maintenance message shows on the MAT, then continue.

- (2) Replace the right autopilot flight director computer (AFDC-R), M22201. These are the tasks:

- Autopilot Flight Director Computer Removal, AMM TASK 22-11-01-000-801
- Autopilot Flight Director Computer Installation, AMM TASK 22-11-01-400-801

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
- 2) If the maintenance message does not show on the MAT, then you corrected the fault.
- 3) If the maintenance message shows on the MAT, then continue.

- (3) Do these steps to correct the wiring problem between the coupler and the AFDC-R.

- (a) Remove the AFDC-R, M22201, do this task: Autopilot Flight Director Computer Removal, AMM TASK 22-11-01-000-801.
- (b) Disconnect connector DB22202 from the current-mode coupler B22202.
- (c) Do a wiring check between these contacts of connector DM22201AB (for the AFDC) and connector DB22202 (for the coupler) (WDM 22-11-18):

DM22201AB	DB22202
pin 6T	pin 2
pin 6TR	pin 1
pin 3T	pin 5
pin 3TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the ARINC 629 wiring (SWPM 20-11-11).
- 2) Re-install the AFDC-R, M22201, do this task: Autopilot Flight Director Computer Installation, AMM TASK 22-11-01-400-801.
- 3) Re-connect connector DB22202 to the current-mode coupler B22202.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.

EFFECTIVITY
ARO ALL

27-02 TASK 986

D633W103-ARO

Page 298.406
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

987. PFCs Have No Input From The Right PSA On Flight Controls ARINC 629 Bus (right) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19334.

B. Initial Evaluation

- (1) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - (b) If the maintenance message shows on the MAT, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the MAT, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: All of the PFCs listen to all three of the flight control ARINC 629 buses. To get this maintenance message, all of the PFCs must agree that there is no data from the right PSA. Thus, replacing a PFC will not correct this problem.

- (1) Replace ARINC current-mode coupler B24201, in the P212 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the right PSA to the Flight Controls 629 Bus-R.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (2) Replace the right power supply assembly (PSA-R), M24201. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - 2) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 3) If the maintenance message shows on the MAT, then continue.
- (3) Do these steps to correct the wiring problem between the coupler and the PSA-R.
- (a) Remove the PSA-R, M24201, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Disconnect connector DB24201 from the current-mode coupler B24201.

EFFECTIVITY
ARO ALL

27-02 TASKS 986-987

D633W103-ARO

Page 298.407
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Do a wiring check between these contacts of connector DM24201AA (for the PSA) and connector DB24201 (for the coupler) (WDM 24-35-21):

DM24201AA	DB24201
pin 4T	pin 2
pin 4TR	pin 1
pin 1T	pin 5
pin 1TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install the PSA-R, M24201, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Transmitter Reset.
 - b) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

988. Primary Flight Computers Self Test Failed - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14034.

B. Initial Evaluation

NOTE: This maintenance message can only occur if you run the Primary Flight Computer Self Test on the MAT.

- (1) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for maintenance messages (ATA system 27) related to the primary flight computers (PFC).
- (a) For each PFC maintenance message you find, do these steps:
- 1) Find the maintenance message in the FIM Maintenance Message Index.
 - 2) Do the specified task.

————— END OF TASK —————

989. EICAS Messages During Primary Flight Computer Self Test

A. Initial Evaluation

- (1) These EICAS messages show while the PFC self test is in operation:

NOTE: The NO AUTOLAND message shows continuously during the test. The other three messages will show intermittently during the test. The test is two minutes long.

- (a) NO AUTOLAND (ADVISORY)
 - (b) FLIGHT CONTROLS (CAUTION)
 - (c) PRI FLIGHT COMPUTERS (CAUTION)
 - (d) FLIGHT CONTROL SYS (STATUS)
- (2) The PFC self test operates automatically when you remove hydraulic power or when you supply electrical power.
- (3) Look at the LINE MAINTENANCE, EXISTING FLIGHT DECK EFFECT display on the MAT.

EFFECTIVITY
ARO ALL

27-02 TASKS 987-989

D633W103-ARO

Page 298.408
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT shows a correlated maintenance message for one of the EICAS messages in the list above, then do these steps:
 - 1) Find the maintenance message in the FIM Maintenance Message Index.
 - 2) Do the specified task.
- (b) If the MAT does not show a correlated maintenance message for one of the EICAS messages in the list above, then no maintenance is necessary.

————— **END OF TASK** —————

990. EICAS Message FLIGHT CONTROL SYS (with no Correlated Maintenance Messages) - Fault Isolation

A. Description

- (1) The "FLIGHT CONTROL SYS" EICAS Status Message can show with no correlated maintenance messages when one or more of these conditions occur:
 - (a) Low Hydraulic Pressure in flight
 - (b) Low Hydraulic Pressure during taxi
 - (c) A stuck Hydraulic Pressure Transducer that:
 - 1) indicates a pressure greater than 1000 psi or
 - 2) its indicated output lags the actual pressure (an undetected pressure transducer fault).
 - (d) A PCU that performs poorly at low Hydraulic Pressures.

NOTE: It is only necessary to erase the EICAS message.
- (2) This EICAS message also shows while the PFC Self Test is in operation.
 - (a) The message will show intermittently during the test.
 - (b) The test starts automatically and is two minutes long.

B. Initial Evaluation



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (1) With Hydraulic Pressure removed, access the Hydraulic Maintenance Page and do a check for any of the 11 Hydraulic Pressure Transducers that indicate above 1000 psi.
 - (a) If a transducer indicates more than 1000 psi, replace it.
- (2) Pressurize and remove Hydraulic Pressure on one Hydraulic System at a time.

NOTE: To set the "FLIGHT CONTROL SYS" EICAS Status Message for this condition, the PFCs must think that all 3 Hydraulic Systems are pressurized. The message is set because one of the ACE's detects a surface actuation fault due to Low Hydraulic Pressure while one of the related Pressure Transducers is stuck above 1000 psi. However, to reset it, only the system with the fault needs to be pressurized.

NOTE: It is important to pressurize only one Hydraulic System at a time to help identify in which Hydraulic System the fault occurred, in case it occurs again.

 - (a) Do this task to pressurize the Hydraulic System: Main Hydraulic System Pressurization with an Alternating Current Motor Pump, AMM TASK 29-11-00-860-803.

EFFECTIVITY
ARO ALL

27-02 TASKS 989-990

D633W103-ARO

Page 298.409
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Do this task to remove Hydraulic Power: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (c) Make sure power is removed from the Left, Center, and Right Hydraulic Systems and the EICAS message shows.
 - (d) Pressurize the Left Hydraulic System: Main Hydraulic System Pressurization with an Alternating Current Motor Pump, AMM TASK 29-11-00-860-803.
 - 1) If the EICAS Message goes away, make a record that pressurizing the Left Hydraulic System erased the message.
 - 2) Remove Hydraulic Power from the Left Hydraulic System: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (e) Pressurize the Center Hydraulic System: Main Hydraulic System Pressurization with an Alternating Current Motor Pump, AMM TASK 29-11-00-860-803.
 - 1) If the EICAS Message goes away, make a record that pressurizing the Center Hydraulic System erased the message.
 - 2) Remove Hydraulic Power from the Center Hydraulic System: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (f) Pressurize the Right Hydraulic System.
 - 1) If the EICAS Message goes away, make a record that pressurizing the Right Hydraulic System erased the message.
 - 2) Remove Hydraulic Power from the Right Hydraulic System: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (g) If the EICAS Message does not show, no more action is required because there is no active EICAS message. The fault may reset on a subsequent flight.
 - (h) If a Hydraulic System Pressure Transducer is suspected to be at fault, do the Fault Isolation Procedure below to identify the defective Pressure Transducer.
- (3) Examine the Captain and F/O Control Position values on the EICAS MAINTENANCE page for differences greater than 2.0 between like transducers when the controls are at neutral.
- (a) If any sensors show a difference greater than 0.02, perform the rigging procedure associated with the transducers.
- (4) On the MAT do the Primary Flight Control System Ground Tests that follow (How to Do a Ground Test, AMM TASK 45-10-00-740-819):
- (a) Column Position
 - (b) Left Elevator Actuator Confidence
 - (c) Pedal Position
 - (d) Right Elevator Actuator Confidence
 - (e) Stabilizer System
 - (f) Wheel Position.
- (5) If the Left Hydraulic System erased the EICAS message, then do - The Left Hydraulic System Erased the EICAS Message below (SUBTASK 27-02-00-810-278).
- (6) If the Right Hydraulic System erased the EICAS message, then do - The Left Hydraulic System Erased the EICAS Message below (SUBTASK 27-02-00-810-279).
- (7) If the Center Hydraulic System erased the EICAS message, then do - The Left Hydraulic System Erased the EICAS Message below (SUBTASK 27-02-00-810-280).

EFFECTIVITY
ARO ALL

27-02 TASK 990

D633W103-ARO

Page 298.410
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure - The Left Hydraulic System Erased the EICAS Message

- (1) Pressurize the Center and Right Hydraulic Systems. Do this task: Main Hydraulic System Pressurization with an Alternating Current Motor Pump, AMM TASK 29-11-00-860-803.
- (2) Use the Left ACMP to pressurize the Left Hydraulic System. This is the task: Main Hydraulic System Pressurization with an Alternating Current Motor Pump, AMM TASK 29-11-00-860-803.
- (3) Make sure that the EICAS Message does not show.
- (4) Display the Hydraulic Maintenance Page.
- (5) Monitor the Hydraulic Maintenance Page, and remove Hydraulic Power from the Left Hydraulic System. This is the task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (6) Monitor the Left Hydraulic SYSTEM PRESS and DEMAND PUMP PRESS as the pressure bleeds OFF.
 - (a) If the EICAS Message shows, the problem is with the transducer that was the slowest bleeding off pressure or was stuck at greater than 1000 psi (either briefly or longer). Replace the defective Left Hydraulic System Pressure Transducer, M29101 or Left ACMP Pressure Transducer, M29109. These are the tasks:
 - 1) Left Hydraulic System Pressure Transducer, M29101:
 - Hydraulic System Pressure Transducer Removal, AMM TASK 29-31-01-000-801
 - Hydraulic System Pressure Transducer Installation, AMM TASK 29-31-01-400-801
 - 2) Left ACMP Pressure Transducer, M29109:
 - Left and Right System Alternating Current Motor Pump (ACMP) Pressure Transducer Removal, AMM TASK 29-31-02-000-801
 - Left and Right System Alternating Current Motor Pump (ACMP) Pressure Transducer Installation, AMM TASK 29-31-02-400-801.
 - (b) If the EICAS message does not show, replace the Left EDP Pressure Transducer, M29108. These are the tasks:
 - Engine-Driven Pump (EDP) Pressure and Case Drain Filter Module and Components Removal, AMM TASK 29-11-42-000-801
 - Engine-Driven Pump (EDP) Pressure and Case Drain Filter Module and Components Installation, AMM TASK 29-11-42-400-801
- (7) Do the Repair Confirmation at the end of this task.

D. Fault Isolation Procedure - The Right Hydraulic System Erased the EICAS Message

- (1) Pressurize the Center and Left Hydraulic Systems. Do this task: Main Hydraulic System Pressurization with an Alternating Current Motor Pump, AMM TASK 29-11-00-860-803.
- (2) Use the Left ACMP to pressurize the Right Hydraulic System. This is the task: Main Hydraulic System Pressurization with an Alternating Current Motor Pump, AMM TASK 29-11-00-860-803.
- (3) Make sure that the EICAS Message does not show.
- (4) Display the Hydraulic Maintenance Page.
- (5) Monitor the Hydraulic Maintenance Page, and remove Hydraulic Power from the Right Hydraulic System. This is the task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (6) Monitor the Right Hydraulic SYSTEM PRESS and DEMAND PUMP PRESS as the pressure bleeds OFF.

EFFECTIVITY
ARO ALL

27-02 TASK 990

D633W103-ARO

Page 298.411
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the EICAS Message shows, the problem is with the transducer that was the slowest bleeding off pressure or was stuck at greater than 1000 psi (either briefly or longer). Replace the defective Right Hydraulic System Pressure Transducer or Right ACMP Pressure Transducer. These are the tasks:
 - 1) Right Hydraulic System Pressure Transducer:
 - Hydraulic System Pressure Transducer Removal, AMM TASK 29-31-01-000-801
 - Hydraulic System Pressure Transducer Installation, AMM TASK 29-31-01-400-801
 - 2) Right ACMP Pressure Transducer:
 - Left and Right System Alternating Current Motor Pump (ACMP) Pressure Transducer Removal, AMM TASK 29-31-02-000-801
 - Left and Right System Alternating Current Motor Pump (ACMP) Pressure Transducer Installation, AMM TASK 29-31-02-400-801.
 - (b) If the EICAS message does not show, replace the Right EDP Pressure Transducer, M29108. These are the tasks:
 - Engine-Driven Pump (EDP) Pressure and Case Drain Filter Module and Components Removal, AMM TASK 29-11-42-000-801
 - Engine-Driven Pump (EDP) Pressure and Case Drain Filter Module and Components Installation, AMM TASK 29-11-42-400-801
- (7) Do the Repair Confirmation at the end of this task.

E. Fault Isolation Procedure - The Center Hydraulic System Erased the EICAS Message

- (1) Pressurize the Left and Right Hydraulic Systems. Do this task: Main Hydraulic System Pressurization with an Alternating Current Motor Pump, AMM TASK 29-11-00-860-803.
- (2) Use the ACMP C1 to pressurize the Center Hydraulic System. This is the task: Main Hydraulic System Pressurization with an Alternating Current Motor Pump, AMM TASK 29-11-00-860-803.
- (3) Make sure that the EICAS Message does not show.
- (4) Display the Hydraulic Maintenance Page.
- (5) Monitor the Hydraulic Maintenance Page, and remove Hydraulic Power from the Center Hydraulic System. This is the task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (6) Monitor the Center 1 Hydraulic SYSTEM PRESS and DEMAND PUMP PRESS as the pressure bleeds OFF.
 - (a) If the EICAS Message shows, the problem is with the transducer that was the slowest bleeding off pressure or was stuck at greater than 1000 psi (either briefly or longer). Replace the defective Center Hydraulic System Pressure Transducer, M29301 or Center 1 ACMP Pressure Transducer, M29312. These are the tasks:
 - 1) Center Hydraulic System Pressure Transducer, M29301:
 - Hydraulic System Pressure Transducer Removal, AMM TASK 29-31-01-000-801
 - Hydraulic System Pressure Transducer Installation, AMM TASK 29-31-01-400-801
 - 2) Center 1 ACMP Pressure Transducer, M29312:
 - Left and Right System Alternating Current Motor Pump (ACMP) Pressure Transducer Removal, AMM TASK 29-31-02-000-801

EFFECTIVITY
ARO ALL

27-02 TASK 990

D633W103-ARO

Page 298.412
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Left and Right System Alternating Current Motor Pump (ACMP) Pressure Transducer Installation, AMM TASK 29-31-02-400-801.
- (b) If the EICAS Message does not show, use the ACMP C2 to pressurize the Center Hydraulic System. This is the task: Main Hydraulic System Pressurization with an Alternating Current Motor Pump, AMM TASK 29-11-00-860-803.
 - 1) Remove Hydraulic Power from the Center Hydraulic System. This is the task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - 2) If the EICAS Message shows, replace the ACMP C2 Pressure Transducer, M29317. These are the tasks:
 - Center System Alternating Current Motor Pump (ACMP) Pressure and Case Drain Filter Module and Components Removal, AMM TASK 29-11-41-000-801
 - Center System Alternating Current Motor Pump (ACMP) Pressure and Case Drain Filter Module and Components Installation, AMM TASK 29-11-41-400-801
 - 3) If the EICAS Message does not show, use ADP C1 to pressurize the Center Hydraulic System. This is the task: Center Hydraulic System Pressurization with an Air-Driven Pump (ADP), AMM TASK 29-11-00-860-805.
 - a) Remove Hydraulic Power from the Center Hydraulic System. This is the task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - <1> If the EICAS Message shows, replace the ADP C1 Pressure Transducer, M29318. These are the tasks:
 - Air-Driven Pump (ADP) Pressure and Case Drain Filter Module and Components Removal, AMM TASK 29-11-43-000-801
 - Air-Driven Pump (ADP) Pressure and Case Drain Filter Module and Components Installation, AMM TASK 29-11-43-400-801.
 - <2> If the EICAS Message does not show, use ADP C2 to pressurize the Center Hydraulic System. This is the task: Center Hydraulic System Pressurization with an Air-Driven Pump (ADP), AMM TASK 29-11-00-860-805. Center Hydraulic System Pressurization with an Air-Driven Pump (ADP), AMM TASK 29-11-00-860-805.
 - <a> Remove Hydraulic Power from the Center Hydraulic System. This is the task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - If the EICAS message shows, replace the ADP C2 Pressure Transducer, M29316. These are the tasks:
 - Air-Driven Pump (ADP) Pressure and Case Drain Filter Module and Components Removal, AMM TASK 29-11-43-000-801
 - Air-Driven Pump (ADP) Pressure and Case Drain Filter Module and Components Installation, AMM TASK 29-11-43-400-801.
 - <c> If the EICAS Message does not show, then there was an intermittent fault. Remove Hydraulic Power from the Left and Right Hydraulic Systems. This is the task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (7) Do the Repair Confirmation at the end of this task.

F. Fault Isolation Procedure (Poor PCU Performance at Low Pressure)

- (1) If replacement of the affected Hydraulic System Pressure Transducer(s) does not resolve the problem, the condition may be the result of a PCU that performs poorly at low pressures.

EFFECTIVITY
ARO ALL

27-02 TASK 990

D633W103-ARO

Page 298.413
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) Operate the affected Hydraulic System with lower Hydraulic Pressure until a fault is set (Flight Controls DC Power - Operational Test, AMM TASK 24-35-00-700-801).
 - (a) Pressurize the two Hydraulic Systems that are not affected. Do this task: Main Hydraulic System Pressurization with an Alternating Current Motor Pump, AMM TASK 29-11-00-860-803.
 - (b) Pressurize the affected Hydraulic System to 3000 psi with a Variable Output Pressure Source: Do this task: Main Hydraulic System Pressurization with a Portable Hydraulic Cart, AMM TASK 29-11-00-860-802.
 - (c) Use the Flight Deck Displays to set and monitor the Hydraulic Pressure supplied by the Ground Cart.
 - (d) Make sure that the "FLIGHT CONTROL SYS" EICAS Status Message does not show.
 - (e) On the MAT, monitor the EXISTING FAULTS.
 - 1) Do not actuate any hydraulically-powered components during this check (e.g., flaps, brakes, stabilizer trim, flaperons, etc.).
 - (f) Reduce the pressure of the Hydraulic Cart approximately 200 psi every 30 seconds until the "FLIGHT CONTROL SYS" EICAS Status Message shows.
 - 1) When the Status message shows, stop reducing the Hydraulic Cart Pressure.
 - (g) If the message does not show after reaching 1200 psi, slowly lower the pressure to 1100 psi and hold it there for at least 30 seconds.
 - (h) If the "FLIGHT CONTROL SYS" Status Message shows, refer to 27-FAULT CODE INDEX to find the applicable FIM Tasks for the correlated maintenance messages that show.
 - 1) Do the Repair Confirmation at the end of this task.
 - (i) If the "FLIGHT CONTROL SYS" Status Message does not show, the cause for the "FLIGHT CONTROL SYS" EICAS STATUS Message without associated Maintenance Messages, cannot be determined at this time.

G. Fault Isolation Procedure (Defective FCDC Battery)

- (1) Do this task to make sure that the FCDC Battery is not defective: Flight Controls DC Power - Operational Test, AMM TASK 24-35-00-700-801.
- (2) If the "FLIGHT CONTROL SYS" EICAS Status Message continues to show, do these steps to reset the "FLIGHT CONTROL SYS" EICAS Status Message:
 - (a) Remove power from the PFC.
 - (b) Cycle the Lane 1/2/3 circuit breakers on the Power Supply Assembly (PSA) Front Panel.
 - 1) If the EICAS Message still shows, replace the FCDC Battery. These are the tasks:
 - FCDC Batteries Removal, AMM TASK 24-35-02-000-801
 - FCDC Batteries Installation, AMM TASK 24-35-02-400-801
 - (c) If necessary, repeat the steps to reset the "FLIGHT CONTROL SYS" EICAS Status Message.

H. Fault Isolation Procedure (No defects identified)

- (1) Do this task to Supply Electrical Power, AMM TASK 24-22-00-860-805.
- (2) Do this task to supply Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Do this task to Showing a System Synoptic Page, AMM TASK 31-61-00-800-816.

EFFECTIVITY
ARO ALL

27-02 TASK 990

D633W103-ARO

Page 298.414
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Compare the values on page 2 of 3 on the ATA 27 Synoptic page with values in table below:

Flight Control Surfaces	Position Ranges with Hydraulics Pressurized - No Control or Trim Inputs
SPOILER (1,2,3,5,10,11,12,13 and 14)	POSITION = -2.90 to -3.30
SPOILER (4 and 11)	POSITION = -2.85 to -3.35
SPOILER (6,7,8 and 9)	POSITION = -2.20 to -2.60
FLAPERON	POSITION = +3.82 to +4.08 PCU FORCE = -500 to +500
AILERON	POSITION = -0.07 TO -0.12
RUDDER	POSITION = +0.21 TO +0.32 DELTA PRESS = -400 TO +400
ELEVATOR	POSITION = -0.05 TO +0.05 DELTA PRESS = -400 TO +400

- (b) If a value on one of the control surfaces does not fall into the specified range then that the flight control component is at fault.
- 1) Do this task for the flight control that is out of range: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- (4) Do this task to depressurize hydraulics: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

- (a) Compare the values on page 2 of 3 on the ATA 27 Synoptic page with the values in table below:

Flight Control Surfaces	Position Ranges with Hydraulics Depressurized
SPOILER (1,2,3,5,10,11,12,13 and 14)	POSITION = -2.90 to -3.30
SPOILER (4 and 11)	POSITION = -2.85 to -3.35
SPOILER (6,7,8 and 9)	POSITION = -2.20 to -2.60
FLAPERON	POSITION (LEFT) signals agree within 1.00 degrees POSITION (RIGHT) signals agree within 1.00 degrees PCU FORCE = -200 to +200
AILERON	POSITION (LEFT) signals agree within 0.20 degrees POSITION (RIGHT) signals agree within 0.20 degrees
RUDDER	POSITION signals agree within 0.40 degrees DELTA PRESS = -200 TO +200
ELEVATOR	POSITION (LEFT) signals agree within 0.40 degrees POSITION (RIGHT) signals agree within 0.40 degrees DELTA PRESS = -200 TO +200

- (b) If a value on one of the flight control surfaces does not fall into the specified range then flight control component is at fault.
- 1) Do this task for the flight control that is out of range: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

EFFECTIVITY
ARO ALL

27-02 TASK 990

D633W103-ARO

Page 298.415
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- I
- (5) Do this task to Remove Electrical Power, AMM TASK 24-22-00-860-806
 - (6) Swap the PSA - L, M24101 with PSA - C. Do the following tasks:
NOTE: Make note to the original location of all components that are swapped.
Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - (7) Do this task to Supply Electrical Power, AMM TASK 24-22-00-860-805
 - (8) Do a check to see if the FLIGHT CONTROL SYS status message is still present. If present, do a check of the MAT to see if a maintenance message is now showing active. If a maintenance message is present, do the trouble shooting per the applicable FIM task. If no maintenance message is active then continue.
 - (9) Do this task to Remove Electrical Power, AMM TASK 24-22-00-860-806
 - (10) Swap the PSA - C, M24301 with PSA - R, M24201. Do the following tasks:
NOTE: Make note to the original location of all components that are swapped.
Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - (11) Do this task to Supply Electrical Power, AMM TASK 24-22-00-860-805
 - (12) Do a check to see if the FLIGHT CONTROL SYS status message is still present. If present, do a check of the MAT to see if a maintenance message is now showing active. If a maintenance message is present, do the trouble shooting per the applicable FIM task. If no maintenance message is active then continue with FIM task. If no maintenance message is present then the fault has been reset.
 - (13) Do this task to Remove Electrical Power, AMM TASK 24-22-00-860-806
 - (14) Swap the ACE - L1, M27121 with the ACE - C, M27321. Do the following tasks:
 - (a) Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (15) Do this task to Supply Electrical Power, AMM TASK 24-22-00-860-805
 - (16) Do a check to see if the FLIGHT CONTROL SYS status message is still present. If present, do a check of the MAT to see if a maintenance message is now showing active. If a maintenance message is present, do the trouble shooting per the applicable FIM task. If no maintenance message is active then continue with FIM task. If no maintenance message is present then the fault has been reset.
 - (17) Do this task to Remove Electrical Power, AMM TASK 24-22-00-860-806
 - (18) Swap the ACE - L2, M27122 with the ACE - R, M27221. Do the following tasks:
 - (a) Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (19) Do this task to Supply Electrical Power, AMM TASK 24-22-00-860-805
 - (20) Do a check to see if the FLIGHT CONTROL SYS status message is still present. If present, do a check of the MAT to see if a maintenance message is now showing active. If a maintenance message is present, do the trouble shooting per the applicable FIM task. If no maintenance message is active then continue with FIM task. If no maintenance message is present then the fault has been reset.
 - (21) Do this task to Remove Electrical Power, AMM TASK 24-22-00-860-806

EFFECTIVITY
ARO ALL

27-02 TASK 990

D633W103-ARO

Page 298.416
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (22) Swap the Primary Flight Computer (PFC) - L, M27106 with Primary Flight Computer (PFC) - C, 27306. Do the following tasks:
 - (a) Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - (b) Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (23) Do this task to Supply Electrical Power, AMM TASK 24-22-00-860-805
- (24) Do a check to see if the FLIGHT CONTROL SYS status message is still present. If present, do a check of the MAT to see if a maintenance message is now showing active. If a maintenance message is present, do the trouble shooting per the applicable FIM task. If no maintenance message is active then continue with FIM task. If no maintenance message is present then the fault has been reset.
- (25) Do this task to Remove Electrical Power, AMM TASK 24-22-00-860-806
- (26) Swap the Primary Flight Computer (PFC) - R, M27206 with Primary Flight Computer (PFC) - L, 27106. Do the following tasks:
 - (a) Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - (b) Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- (27) Do this task to Supply Electrical Power, AMM TASK 24-22-00-860-805
- (28) Do a check to see if the FLIGHT CONTROL SYS status message is still present. If present, do a check of the MAT to see if a maintenance message is now showing active. If a maintenance message is present, do the trouble shooting per the applicable FIM task. If no maintenance message is active then continue with FIM task. If no maintenance message is present then the fault has been reset.
- (29) With no fault found and no active messages present, do the following tasks for all circuits for each flight control actuator.
 - (a) Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801
 - (b) Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802

I. Repair Confirmation

- (1) Do this Ground Test on the MAT: Primary Flight Computer (PFC) Reset Test, AMM TASK 27-02-01-400-801.
 - (a) If the EICAS message does not show, you corrected the fault.
 - (b) If the EICAS message still shows, then continue the Fault Isolation Procedure at the applicable subsequent step.

————— END OF TASK —————

991. EICAS Message SPOILER (with No Correlated Maintenance Messages) - Fault Isolation

A. Initial Evaluation

NOTE: This EICAS message can show with no correlated maintenance message when these 3 conditions occur together: 1) engines are in operation; 2) hydraulic power is off (or hydraulic pressure is low); and 3) you move the speedbrake lever or the control wheel. It is only necessary to erase the message.

- (1) Do these 5 ground tests on the MAT (this will erase the EICAS message):
 - (a) 27 Primary Flight Control System, System Test, Spoiler 1, 7, 8, 14 System
 - (b) 27 Primary Flight Control System, System Test, Spoiler 2, 13 System

EFFECTIVITY
ARO ALL

27-02 TASKS 990-991

D633W103-ARO

Page 298.417
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) 27 Primary Flight Control System, System Test, Spoiler 3, 6, 9, 12 System
- (d) 27 Primary Flight Control System, System Test, Spoiler 4, 11 System
- (e) 27 Primary Flight Control System, System Test, Spoiler 5, 10 System

————— **END OF TASK** —————

992. PFC-C (lane 1) ARINC Fault on Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14044.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLERS EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27073, in the P312 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-C to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (2) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.
- (a) Do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASKS 991-992

D633W103-ARO

Page 298.418
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
- (a) Remove the PFC-C, M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (b) Disconnect connector DB27073 from the ARINC 629 coupler B27073.
 - (c) Do a wiring check between these contacts of connector DM27306AA (for PFC-C) and the connector DB27073 at the coupler (WDM 27-02-45):

DM27306AA	DB27073
pin 6T	pin 2
pin 6TR	pin 1
pin 3T	pin 5
pin 3TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DB27073 to the ARINC 629 coupler B27073.
 - 3) Re-install the center primary flight computer (PFC-C), M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

———— **END OF TASK** ————

993. PFC-C (lane 1) ARINC Fault on Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14045.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:

EFFECTIVITY
ARO ALL

27-02 TASKS 992-993

D633W103-ARO

Page 298.419
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27071, in the P112 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-C to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:

- (a) Remove the PFC-C, M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (b) Disconnect connector DB27071 from the ARINC 629 coupler B27071.
- (c) Do a wiring check between these contacts of connector DM27306AC (for PFC-C) and the connector DB27071 at the coupler (WDM 27-02-41):

DM27306AC	DB27071
pin 3T	pin 2
pin 3TR	pin 1
pin 1T	pin 5
pin 1TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-02 TASK 993

D633W103-ARO

Page 298.420
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-connect connector DB27071 to the ARINC 629 coupler B27071.
- 3) Re-install the center primary flight computer (PFC-C), M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

994. PFC-C (lane 1) ARINC Fault on Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14046.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27072, in the P212 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-C to the Flt Ctrl 629 Bus-R.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS 993-994

D633W103-ARO

Page 298.421
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the PFC-C, M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (b) Disconnect connector DB27072 from the ARINC 629 coupler B27072.
 - (c) Do a wiring check between these contacts of connector DM27306AC (for PFC-C) and the connector DB27072 at the coupler (WDM 27-02-43):

DM27306AC	DB27072
pin 7T	pin 2
pin 7TR	pin 1
pin 5T	pin 5
pin 5TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27072 to the ARINC 629 coupler B27072.
 - 3) Re-install the center primary flight computer (PFC-C), M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

995. PFC-C (lane 2) ARINC Fault on Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14047.

EFFECTIVITY
ARO ALL

27-02 TASKS 994-995

D633W103-ARO

Page 298.422
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27083, in the P312 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-C to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the PFC-C, M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.

EFFECTIVITY
ARO ALL

27-02 TASK 995

D633W103-ARO

Page 298.423
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (b) Disconnect connector DB27083 from the ARINC 629 coupler B27083.
- (c) Do a wiring check between these contacts of connector DM27306AA (for PFC-C) and the connector DB27083 at the coupler (WDM 27-02-45):

DM27306AA	DB27083
pin 10T	pin 2
pin 10TR	pin 1
pin 9T	pin 5
pin 9TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27083 to the ARINC 629 coupler B27083.
 - 3) Re-install the center primary flight computer (PFC-C), M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

END OF TASK

996. PFC-C (lane 2) ARINC Fault on Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14048.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS 995-996

D633W103-ARO

Page 298.424
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27081, in the P112 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-C to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:

- (a) Remove the PFC-C, M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (b) Disconnect connector DB27081 from the ARINC 629 coupler B27081.
- (c) Do a wiring check between these contacts of connector DM27306AC (for PFC-C) and the connector DB27081 at the coupler (WDM 27-02-41):

DM27306AC	DB27081
pin 6T	pin 2
pin 6TR	pin 1
pin 9T	pin 5
pin 9TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DB27081 to the ARINC 629 coupler B27081.
- 3) Re-install the center primary flight computer (PFC-C), M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASK 996

D633W103-ARO

Page 298.425
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

997. PFC-C (lane 2) ARINC Fault on Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14049.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27082, in the P212 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-C to the Flt Ctrl 629 Bus-R.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS 996-997

D633W103-ARO

Page 298.426
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the PFC-C, M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (b) Disconnect connector DB27082 from the ARINC 629 coupler B27082.
 - (c) Do a wiring check between these contacts of connector DM27306AA (for PFC-C) and the connector DB27082 at the coupler (WDM 27-02-43):

DM27306AA	DB27082
pin 1T	pin 2
pin 1TR	pin 1
pin 2T	pin 5
pin 2TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27082 to the ARINC 629 coupler B27082.
 - 3) Re-install the center primary flight computer (PFC-C), M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

998. PFC-C (lane 3) ARINC Fault on Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14050.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS 997-998

D633W103-ARO

Page 298.427
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27093, in the P312 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-C to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:

- (a) Remove the PFC-C, M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (b) Disconnect connector DB27093 from the ARINC 629 coupler B27093.
- (c) Do a wiring check between these contacts of connector DM27306AA (for PFC-C) and the connector DB27093 at the coupler (WDM 27-02-45):

DM27306AA	DB27093
pin 7T	pin 2
pin 7TR	pin 1
pin 8T	pin 5
pin 8TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DB27093 to the ARINC 629 coupler B27093.

EFFECTIVITY
ARO ALL

27-02 TASK 998

D633W103-ARO

Page 298.428
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the center primary flight computer (PFC-C), M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

999. PFC-C (lane 3) ARINC Fault on Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14051.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27091, in the P112 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-C to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS 998-999

D633W103-ARO

Page 298.429
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the PFC-C, M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (b) Disconnect connector DB27091 from the ARINC 629 coupler B27091.
 - (c) Do a wiring check between these contacts of connector DM27306AC (for PFC-C) and the connector DB27091 at the coupler (WDM 27-02-41):

DM27306AC	DB27091
pin 10T	pin 2
pin 10TR	pin 1
pin 8T	pin 5
pin 8TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27091 to the ARINC 629 coupler B27091.
 - 3) Re-install the center primary flight computer (PFC-C), M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

A00. PFC-C (lane 3) ARINC Fault on Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14052.

EFFECTIVITY
ARO ALL

27-02 TASKS 999-A00

D633W103-ARO

Page 298.430
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27092, in the P212 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-C to the Flt Ctrl 629 Bus-R.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the center primary flight computer (PFC-C), M27306. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the PFC-C, M27306. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.

EFFECTIVITY
ARO ALL

27-02 TASK A00

D633W103-ARO

Page 298.431
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Disconnect connector DB27092 from the ARINC 629 coupler B27092.
- (c) Do a wiring check between these contacts of connector DM27306AC (for PFC-C) and the connector DB27092 at the coupler (WDM 27-02-43):

DM27306AC	DB27092
pin 4T	pin 2
pin 4TR	pin 1
pin 2T	pin 5
pin 2TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27092 to the ARINC 629 coupler B27092.
 - 3) Re-install the center primary flight computer (PFC-C), M27306. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (C) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

— END OF TASK —

A01. PFC-L (lane 1) ARINC Fault on Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14053.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS A00-A01

D633W103-ARO

Page 298.432
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27013, in the P312 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the, PFC-L to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:

- (a) Remove the, PFC-L, M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (b) Disconnect connector DB27013 from the ARINC 629 coupler B27013.
- (c) Do a wiring check between these contacts of connector DM27106AC (for, PFC-L) and the connector DB27013 at the coupler (WDM 27-02-45):

DM27106AC	DB27013
pin 7T	pin 2
pin 7TR	pin 1
pin 5T	pin 5
pin 5TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DB27013 to the ARINC 629 coupler B27013.
- 3) Re-install the left primary flight computer (PFC-L), M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASK A01

D633W103-ARO

Page 298.433
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

A02. PFC-L (lane 1) ARINC Fault on Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14054.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27011, in the P112 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the, PFC-L to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS A01-A02

D633W103-ARO

Page 298.434
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the, PFC-L, M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (b) Disconnect connector DB27011 from the ARINC 629 coupler B27011.
 - (c) Do a wiring check between these contacts of connector DM27106AA (for, PFC-L) and the connector DB27011 at the coupler (WDM 27-02-41):

DM27106AA	DB27011
pin 6T	pin 2
pin 6TR	pin 1
pin 3T	pin 5
pin 3TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27011 to the ARINC 629 coupler B27011.
 - 3) Re-install the left primary flight computer (PFC-L), M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

A03. PFC-L (lane 1) ARINC Fault on Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14055.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS A02-A03

D633W103-ARO

Page 298.435
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27012, in the P212 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the, PFC-L to the Flt Ctrl 629 Bus-R.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:

- (a) Remove the, PFC-L, M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (b) Disconnect connector DB27012 from the ARINC 629 coupler B27012.
- (c) Do a wiring check between these contacts of connector DM27106AC (for, PFC-L) and the connector DB27012 at the coupler (WDM 27-02-43):

DM27106AC	DB27012
pin 3T	pin 2
pin 3TR	pin 1
pin 1T	pin 5
pin 1TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DB27012 to the ARINC 629 coupler B27012.

EFFECTIVITY
ARO ALL

27-02 TASK A03

D633W103-ARO

Page 298.436
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the left primary flight computer (PFC-L), M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

A04. PFC-L (lane 2) ARINC Fault on Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14056.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27023, in the P312 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the, PFC-L to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS A03-A04

D633W103-ARO

Page 298.437
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
- (a) Remove the, PFC-L, M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (b) Disconnect connector DB27023 from the ARINC 629 coupler B27023.
- (c) Do a wiring check between these contacts of connector DM27106AA (for, PFC-L) and the connector DB27023 at the coupler (WDM 27-02-45):

DM27106AA	DB27023
pin 1T	pin 2
pin 1TR	pin 1
pin 2T	pin 5
pin 2TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DB27023 to the ARINC 629 coupler B27023.
 - 3) Re-install the left primary flight computer (PFC-L), M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

A05. PFC-L (lane 2) ARINC Fault on Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14057.

EFFECTIVITY
ARO ALL

27-02 TASKS A04-A05

D633W103-ARO

Page 298.438
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27021, in the P112 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the, PFC-L to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the, PFC-L, M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.

EFFECTIVITY
ARO ALL

27-02 TASK A05

D633W103-ARO

Page 298.439
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Disconnect connector DB27021 from the ARINC 629 coupler B27021.
- (c) Do a wiring check between these contacts of connector DM27106AA (for, PFC-L) and the connector DB27021 at the coupler (WDM 27-02-41):

DM27106AA	DB27021
pin 10T	pin 2
pin 10TR	pin 1
pin 9T	pin 5
pin 9TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27021 to the ARINC 629 coupler B27021.
 - 3) Re-install the left primary flight computer (PFC-L), M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

— END OF TASK —

A06. PFC-L (lane 2) ARINC Fault on Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14058.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS A05-A06

D633W103-ARO

Page 298.440
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27022, in the P212 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the, PFC-L to the Flt Ctrl 629 Bus-R.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:

- (a) Remove the, PFC-L, M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (b) Disconnect connector DB27022 from the ARINC 629 coupler B27022.
- (c) Do a wiring check between these contacts of connector DM27106AA (for, PFC-L) and the connector DB27022 at the coupler (WDM 27-02-43):

DM27106AA	DB27022
pin 6T	pin 2
pin 6TR	pin 1
pin 9T	pin 5
pin 9TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DB27022 to the ARINC 629 coupler B27022.
- 3) Re-install the left primary flight computer (PFC-L), M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASK A06

D633W103-ARO

Page 298.441
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

A07. PFC-L (lane 3) ARINC Fault on Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14059.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27033, in the P312 panel.

These are the tasks:

ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,

ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.

NOTE: This is one of the couplers that connect the, PFC-L to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the left primary flight computer (PFC-L), M27106.

These are the tasks:

Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801,

Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

EFFECTIVITY
ARO ALL

27-02 TASKS A06-A07

D633W103-ARO

Page 298.442
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the, PFC-L, M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (b) Disconnect connector DB27033 from the ARINC 629 coupler B27033.
 - (c) Do a wiring check between these contacts of connector DM27106AC (for, PFC-L) and the connector DB27033 at the coupler (WDM 27-02-45):

DM27106AC	DB27033
pin 4T	pin 2
pin 4TR	pin 1
pin 2T	pin 5
pin 2TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27033 to the ARINC 629 coupler B27033.
 - 3) Re-install the left primary flight computer (PFC-L), M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

A08. PFC-L (lane 3) ARINC Fault on Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14060.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS A07-A08

D633W103-ARO

Page 298.443
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27031, in the P112 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the, PFC-L to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:

- (a) Remove the, PFC-L, M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (b) Disconnect connector DB27031 from the ARINC 629 coupler B27031.
- (c) Do a wiring check between these contacts of connector DM27106AA (for, PFC-L) and the connector DB27031 at the coupler (WDM 27-02-41):

DM27106AA	DB27031
pin 7T	pin 2
pin 7TR	pin 1
pin 8T	pin 5
pin 8TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-02 TASK A08

D633W103-ARO

Page 298.444
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-connect connector DB27031 to the ARINC 629 coupler B27031.
- 3) Re-install the left primary flight computer (PFC-L), M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

A09. PFC-L (lane 3) ARINC Fault on Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14061.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27032, in the P212 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the, PFC-L to the Flt Ctrl 629 Bus-R.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the left primary flight computer (PFC-L), M27106. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASKS A08-A09

D633W103-ARO

Page 298.445
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the, PFC-L, M27106. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (b) Disconnect connector DB27032 from the ARINC 629 coupler B27032.
 - (c) Do a wiring check between these contacts of connector DM27106AC (for, PFC-L) and the connector DB27032 at the coupler (WDM 27-02-43):

DM27106AC	DB27032
pin 10T	pin 2
pin 10TR	pin 1
pin 8T	pin 5
pin 8TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27032 to the ARINC 629 coupler B27032.
 - 3) Re-install the left primary flight computer (PFC-L), M27106. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (L) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

A10. PFC-R (lane 1) ARINC Fault on Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14062.

EFFECTIVITY
ARO ALL

27-02 TASKS A09-A10

D633W103-ARO

Page 298.446
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27043, in the P312 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-R to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (2) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the PFC-R, M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.

EFFECTIVITY
ARO ALL

27-02 TASK A10

D633W103-ARO

Page 298.447
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Disconnect connector DB27043 from the ARINC 629 coupler B27043.
- (c) Do a wiring check between these contacts of connector DM27206AC (for PFC-R) and the connector DB27043 at the coupler (WDM 27-02-45):

DM27206AC	DB27043
pin 3T	pin 2
pin 3TR	pin 1
pin 1T	pin 5
pin 1TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27043 to the ARINC 629 coupler B27043.
 - 3) Re-install the right primary flight computer (PFC-R), M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

END OF TASK

A11. PFC-R (Lane 1) ARINC Fault on Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14063.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS A10-A11

D633W103-ARO

Page 298.448
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27041, in the P112 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-R to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:

- (a) Remove the PFC-R, M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (b) Disconnect connector DB27041 from the ARINC 629 coupler B27041.
- (c) Do a wiring check between these contacts of connector DM27206AC (for PFC-R) and the connector DB27041 at the coupler (WDM 27-02-41):

DM27206AC	DB27041
pin 7T	pin 2
pin 7TR	pin 1
pin 5T	pin 5
pin 5TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DB27041 to the ARINC 629 coupler B27041.
- 3) Re-install the right primary flight computer (PFC-R), M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASK A11

D633W103-ARO

Page 298.449
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

A12. PFC-R (Lane 1) ARINC Fault on Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14064.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27042, in the P212 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-R to the Flt Ctrl 629 Bus-R.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS A11-A12

D633W103-ARO

Page 298.450
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the PFC-R, M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (b) Disconnect connector DB27042 from the ARINC 629 coupler B27042.
 - (c) Do a wiring check between these contacts of connector DM27206AA (for PFC-R) and the connector DB27042 at the coupler (WDM 27-02-43):

DM27206AA	DB27042
pin 6T	pin 2
pin 6TR	pin 1
pin 3T	pin 5
pin 3TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27042 to the ARINC 629 coupler B27042.
 - 3) Re-install the right primary flight computer (PFC-R), M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

A13. PFC-R (lane 2) ARINC Fault on Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14065.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS A12-A13

D633W103-ARO

Page 298.451
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27053, in the P312 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-R to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:

- (a) Remove the PFC-R, M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (b) Disconnect connector DB27053 from the ARINC 629 coupler B27053.
- (c) Do a wiring check between these contacts of connector DM27206AC (for PFC-R) and the connector DB27053 at the coupler (WDM 27-02-45):

DM27206AC	DB27053
pin 6T	pin 2
pin 6TR	pin 1
pin 9T	pin 5
pin 9TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DB27053 to the ARINC 629 coupler B27053.

EFFECTIVITY
ARO ALL

27-02 TASK A13

D633W103-ARO

Page 298.452
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the right primary flight computer (PFC-R), M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

A14. PFC-R (lane 2) ARINC Fault on Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14066.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27051, in the P112 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-R to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801

EFFECTIVITY
ARO ALL

27-02 TASKS A13-A14

D633W103-ARO

Page 298.453
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the PFC-R, M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (b) Disconnect connector DB27051 from the ARINC 629 coupler B27051.
 - (c) Do a wiring check between these contacts of connector DM27206AA (for PFC-R) and the connector DB27051 at the coupler (WDM 27-02-41):

DM27206AA	DB27051
pin 1T	pin 2
pin 1TR	pin 1
pin 2T	pin 5
pin 2TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27051 to the ARINC 629 coupler B27051.
 - 3) Re-install the right primary flight computer (PFC-R), M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

A15. PFC-R (lane 2) ARINC Fault on Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14067.

EFFECTIVITY
ARO ALL

27-02 TASKS A14-A15

D633W103-ARO

Page 298.454
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27052, in the P212 panel. These are the tasks:
 - ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-R to the Flt Ctrl 629 Bus-R.

- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:
 - Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the PFC-R, M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.

EFFECTIVITY
ARO ALL

27-02 TASK A15

D633W103-ARO

Page 298.455
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Disconnect connector DB27052 from the ARINC 629 coupler B27052.
- (c) Do a wiring check between these contacts of connector DM27206AA (for PFC-R) and the connector DB27052 at the coupler (WDM 27-02-43):

DM27206AA	DB27052
pin 10T	pin 2
pin 10TR	pin 1
pin 9T	pin 5
pin 9TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27052 to the ARINC 629 coupler B27052.
 - 3) Re-install the right primary flight computer (PFC-R), M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

— END OF TASK —

A16. PFC-R (Lane 3) ARINC Fault on Flt Ctrl 629 Bus-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14068.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-02 TASKS A15-A16

D633W103-ARO

Page 298.456
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27063, in the P312 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-R to the Flt Ctrl 629 Bus-C.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:

- (a) Remove the PFC-R, M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (b) Disconnect connector DB27063 from the ARINC 629 coupler B27063.
- (c) Do a wiring check between these contacts of connector DM27206AC (for PFC-R) and the connector DB27063 at the coupler (WDM 27-02-45):

DM27206AC	DB27063
pin 10T	pin 2
pin 10TR	pin 1
pin 8T	pin 5
pin 8TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DB27063 to the ARINC 629 coupler B27063.
- 3) Re-install the right primary flight computer (PFC-R), M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASK A16

D633W103-ARO

Page 298.457
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

A17. PFC-R (lane 3) ARINC Fault on Flt Ctrl 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14069.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27061, in the P112 panel. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-R to the Flt Ctrl 629 Bus-L.

- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:
- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
 - Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802
- NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS A16-A17

D633W103-ARO

Page 298.458
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:
 - (a) Remove the PFC-R, M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
 - (b) Disconnect connector DB27061 from the ARINC 629 coupler B27061.
 - (c) Do a wiring check between these contacts of connector DM27206AC (for PFC-R) and the connector DB27061 at the coupler (WDM 27-02-41):

DM27206AC	DB27061
pin 4T	pin 2
pin 4TR	pin 1
pin 2T	pin 5
pin 2TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DB27061 to the ARINC 629 coupler B27061.
 - 3) Re-install the right primary flight computer (PFC-R), M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
 - 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

A18. PFC-R (Lane 3) ARINC Fault on Flt Ctrl 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-14070.

B. Initial Evaluation

NOTE: IT IS POSSIBLE THAT AN INTERMITTENT FAULT WITH THE ARINC 629 COUPLERS OR STUB CABLES CAN CAUSE THIS MAINTENANCE MESSAGE TO LATCH. IF THIS FAULT OCCURS BEFORE AND THE PFC IS ALREADY REPLACED, IT IS POSSIBLE THAT THIS FAULT IS WITH AN ARINC 629 COUPLER OR STUB CABLE AND NOT WITH THE PFC ITSELF. IF THIS IS THE CASE, THEN CONTINUE ON WITH THE FAULT ISOLATION PROCEDURE AND REPLACE THE ARINC 629 COUPLER EVEN AFTER THE PFC HAS BEEN REPLACED.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.

EFFECTIVITY
ARO ALL

27-02 TASKS A17-A18

D633W103-ARO

Page 298.459
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ARINC 629 coupler, B27062, in the P212 panel. These are the tasks:

- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This is one of the couplers that connect the PFC-R to the Flt Ctrl 629 Bus-R.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the right primary flight computer (PFC-R), M27206. These are the tasks:

- Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801
- Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802

NOTE: Do the ground test below before you do the ground tests in the Installation Test of AMM 27-02-01. However, do the software configuration check in the Installation Test of AMM 27-02-01 before you do any of the ground tests.

- (a) Do this ground test on the MAT:

- 1) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do this wiring check of the wiring between the PFC and the ARINC 629 coupler:

- (a) Remove the PFC-R, M27206. To remove it, do this task: Primary Flight Computer (PFC) Removal, AMM TASK 27-02-01-000-801.
- (b) Disconnect connector DB27062 from the ARINC 629 coupler B27062.
- (c) Do a wiring check between these contacts of connector DM27206AA (for PFC-R) and the connector DB27062 at the coupler (WDM 27-02-43):

DM27206AA	DB27062
pin 7T	pin 2
pin 7TR	pin 1
pin 8T	pin 5
pin 8TR	pin 4

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DB27062 to the ARINC 629 coupler B27062.

EFFECTIVITY
ARO ALL

27-02 TASK A18

D633W103-ARO

Page 298.460
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the right primary flight computer (PFC-R), M27206. To install it, do this task: Primary Flight Computer (PFC) Installation, AMM TASK 27-02-01-400-802.
- 4) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Primary Flight Computer (R) Lane Reset.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

A19. Altitude Signal from RA (Center) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19550.

B. Initial Evaluation

- (1) If the AUTO SPEEDBRAKE EICAS message appears after cycling the LEFT RADIO ALT, C34431, RIGHT RADIO ALT, C4432, and CENTER RADIO ALT, C4433 Circuit Breakers, then cycle the hydraulic power off and back on again. Do these tasks to cycle the hydraulic power:
 - Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808
 - Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Speedbrake System.
NOTE: The RESET LATCH may display on the MAT during the System Test if there is an existing fault. Select RESET LATCH to reset the fault and continue the test.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the Extended Maintenance, Existing Faults display on the MAT.
 - (a) If a maintenance message related to the center radio altimeter (RA) transceiver, then do these steps:
 - 1) Find the message in the applicable FIM Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - 3) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Speedbrake System.
<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.

EFFECTIVITY
ARO ALL

27-02 TASKS A18-A19

D633W103-ARO

Page 298.461
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If maintenance message 27-19550 does not show on the ground test display, you corrected the fault.
 - d) If maintenance message 27-19550 shows on the ground test display, then continue.
- (b) If a maintenance message related to center RA transceiver does not show in Existing Faults, then continue.
- (2) Replace the center radio altimeter (RA) transceiver, M34312. These are the tasks:
- Radio Altimeter Transceiver Removal, AMM TASK 34-33-01-000-801
 - Radio Altimeter Transceiver Installation, AMM TASK 34-33-01-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the #3 IOM (M004) in the left AIMS cabinet. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the #4 IOM (M003) in the left AIMS cabinet. These are the tasks:
- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
- 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the #3 IOM (M004) in the right AIMS cabinet. These are the tasks:

EFFECTIVITY
ARO ALL

27-02 TASK A19

D633W103-ARO

Page 298.462
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
- Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the #4 IOM (M003) in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

A20. Altitude Signal from RA (Right) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-19630.

B. Initial Evaluation

- (1) If the AUTO SPEEDBRAKE EICAS message appears after cycling the LEFT RADIO ALT, C34431, RIGHT RADIO ALT, C4432, and CENTER RADIO ALT, C4433 Circuit Breakers, then cycle the hydraulic power off and back on again. Do these tasks to cycle the hydraulic power:
 - Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808
 - Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Speedbrake System.

NOTE: The RESET LATCH may display on the MAT during the System Test if there is an existing fault. Select RESET LATCH to reset the fault and continue the test.

 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.

EFFECTIVITY
ARO ALL

27-02 TASKS A19-A20

D633W103-ARO

Page 298.463
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the Extended Maintenance, Existing Faults display on the MAT.
 - (a) If a maintenance message related to the right radio altimeter (RA) transceiver, then do these steps:
 - 1) Find the message in the applicable FIM Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - 3) Do this ground test on the MAT:
 - a) 27-Primary Flight Controls, System Test, Speedbrake System.
<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If maintenance message 27-19630 does not show on the ground test display, you corrected the fault.
 - d) If maintenance message 27-19630 shows on the ground test display, then continue.
 - (b) If a maintenance message related to right RA transceiver does not show in Existing Faults, then continue.
- (2) Replace the right radio altimeter (RA) transceiver, M34212. These are the tasks:
 - Radio Altimeter Transceiver Removal, AMM TASK 34-33-01-000-801
 - Radio Altimeter Transceiver Installation, AMM TASK 34-33-01-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the #1 IOM (M009) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.

EFFECTIVITY
ARO ALL

27-02 TASK A20

D633W103-ARO

Page 298.464
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the #2 IOM (M008) in the left AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the #1 IOM (M009) in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the #2 IOM (M008) in the right AIMS cabinet. These are the tasks:
 - Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801
 - Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801
- (a) Do this ground test on the MAT:
 - 1) 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

A21. Scheduled Maintenance Task TEST PASSED or TEST FAILED - Fault Isolation

A. Initial Evaluation

NOTE: This scheduled maintenance task tells you the result of the Actuator Control Electronics Monitor test that you did on the MAT. The result of the test shows in two places:

- On the MAT ground test display

EFFECTIVITY
ARO ALL

27-02 TASKS A20-A21

D633W103-ARO

Page 298.465
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- On the MFD "31 MAINTENANCE TASK" maintenance page.

- (1) If you need to do the ground test, do this task: Actuator Control Electronics (ACE) Monitor Test, AMM TASK 27-02-02-400-801.

END OF TASK

A22. Actuator Control Electronics (Left 1) Configuration Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13066.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the configuration pins for the left-1 actuator control electronics (ACE-L1) (WDM 27-02-36):
 - (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a check to make sure that pins D6 and C6 of connector DM27121AB are connected.
 - 1) If pins D6 and C6 of connector DM27121AB are not connected, then do these steps:
 - a) Repair the wiring.

EFFECTIVITY
ARO ALL

27-02 TASKS A21-A22

D633W103-ARO

Page 298.466
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - c) Do the Repair Confirmation procedure at the end of this task.
 - 2) If pins D6 and C6 of connector DM27121AB are connected, then continue.
- (d) Do a check to make sure that pins D8 and C8 of connector DM27121AB are connected.
 - 1) If pins D8 and C8 of connector DM27121AB are not connected, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - c) Do the Repair Confirmation procedure at the end of this task.
 - 2) If pins D8 and C8 of connector DM27121AB are connected, then continue.
- (e) Do a check to make sure that these pins of connector DM27121AB are not connected to ground:
 - 1) List of Ungrounded Configuration Pins:
 - a) Pin D5
 - b) Pin C5
 - c) Pin D7
 - d) Pin C7
 - e) Pin D9
 - f) Pin C9
 - g) Pin D10
 - h) Pin C10
 - 2) If any of the pins in the list above are connected to ground, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - c) Do the Repair Confirmation procedure at the end of this task.
 - 3) If any of the pins in the list above are not connected to ground, then continue.
- (2) Install a new ACE-L1. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU

EFFECTIVITY
ARO ALL

27-02 TASK A22

D633W103-ARO

Page 298.467
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (2) Do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

A23. Actuator Control Electronics (Left 2) Configuration Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13067.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the configuration pins for the left-2 actuator control electronics (ACE-L2) (WDM 27-02-36):
- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

EFFECTIVITY
ARO ALL

27-02 TASKS A22-A23

D633W103-ARO

Page 298.468
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Do a check to make sure that pins D6 and C6 of connector DM27122AB are connected.
 - 1) If pins D6 and C6 of connector DM27122AB are not connected, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - c) Do the Repair Confirmation procedure at the end of this task.
 - 2) If pins D6 and C6 of connector DM27122AB are connected, then continue.
- (d) Do a check to make sure that pins D8 and C8 of connector DM27122AB are connected.
 - 1) If pins D8 and C8 of connector DM27122AB are not connected, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - c) Do the Repair Confirmation procedure at the end of this task.
 - 2) If pins D8 and C8 of connector DM27122AB are connected, then continue.
- (e) Do a check to make sure that these pins of connector DM27122AB are not connected to ground:
 - 1) List of Ungrounded Configuration Pins:
 - a) Pin D5
 - b) Pin C5
 - c) Pin D7
 - d) Pin C7
 - e) Pin D9
 - f) Pin C9
 - g) Pin D10
 - h) Pin C10.
 - 2) If any of the pins in the list above are connected to ground, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - c) Do the Repair Confirmation procedure at the end of this task.
 - 3) If any of the pins in the list above are not connected to ground, then continue.
- (2) Install a new ACE-L2. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR

EFFECTIVITY
ARO ALL

27-02 TASK A23

D633W103-ARO

Page 298.469
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (2) Do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

A24. Actuator Control Electronics (Center) Configuration Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13068.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the configuration pins for the center actuator control electronics (ACE-C) (WDM 27-02-36):
 - (a) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

EFFECTIVITY
ARO ALL

27-02 TASKS A23-A24

D633W103-ARO

Page 298.470
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a check to make sure that pins D6 and C6 of connector DM27321AB are connected.
 - 1) If pins D6 and C6 of connector DM27321AB are not connected, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - c) Do the Repair Confirmation procedure at the end of this task.
 - 2) If pins D6 and C6 of connector DM27321AB are connected, then continue.
- (d) Do a check to make sure that pins D8 and C8 of connector DM27321AB are connected.
 - 1) If pins D8 and C8 of connector DM27321AB are not connected, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - c) Do the Repair Confirmation procedure at the end of this task.
 - 2) If pins D8 and C8 of connector DM27321AB are connected, then continue.
- (e) Do a check to make sure that these pins of connector DM27321AB are not connected to ground:
 - 1) List of Ungrounded Configuration Pins:
 - a) Pin D5
 - b) Pin C5
 - c) Pin D7
 - d) Pin C7
 - e) Pin D9
 - f) Pin C9
 - g) Pin D10
 - h) Pin C10.
 - 2) If any of the pins in the list above are connected to ground, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the ACE-C that you removed, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-02 TASK A24

D633W103-ARO

Page 298.471
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- c) Do the Repair Confirmation procedure at the end of this task.
- 3) If any of the pins in the list above are not connected to ground, then continue and perform the next step.
- (2) Install a new ACE-C. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (2) Do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

A25. Actuator Control Electronics (Right) Configuration Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13069.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT:
 - (a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-02 TASKS A24-A25

D633W103-ARO

Page 298.472
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the configuration pins for the right actuator control electronics (ACE-R) (WDM 27-02-36):

- (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a check to make sure that pins D6 and C6 of connector DM27221AB are connected.
- 1) If pins D6 and C6 of connector DM27221AB are not connected, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - c) Do the Repair Confirmation procedure at the end of this task.
 - 2) If pins D6 and C6 of connector DM27221AB are connected, then continue.
- (d) Do a check to make sure that pins D8 and C8 of connector DM27221AB are connected.
- 1) If pins D8 and C8 of connector DM27221AB are not connected, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - c) Do the Repair Confirmation procedure at the end of this task.
 - 2) If pins D8 and C8 of connector DM27221AB are connected, then continue.

EFFECTIVITY
ARO ALL

27-02 TASK A25

D633W103-ARO

Page 298.473
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (e) Do a check to make sure that these pins of connector DM27221AB are not connected to ground:
- 1) List of Ungrounded Configuration Pins:
 - a) Pin D5
 - b) Pin C5
 - c) Pin D7
 - d) Pin C7
 - e) Pin D9
 - f) Pin C9
 - g) Pin D10
 - h) Pin C10.
 - 2) If any of the pins in the list above are connected to ground, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - c) Do the Repair Confirmation procedure at the end of this task.
 - 3) If any of the pins in the list above are not connected to ground, then continue.
- (2) Install a new ACE-R. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (2) Do this ground test on the MAT:
- (a) 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.

EFFECTIVITY
ARO ALL

27-02 TASK A25

D633W103-ARO

Page 298.474
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

A26. EICAS Status Message PFCS INTERFACE with No Correlated Maintenance Message - Fault Isolation

A. Initial Evaluation

- (1) Look at the Extended Maintenance, Present Leg Faults display on the MAT for one or more of these maintenance messages:
- 24-50201
 - 24-50202
 - 24-50203
 - 24-50211
 - 24-50212
 - 24-50213
 - 24-50221
 - 24-50222,
 - 24-50223.
- (a) If you find one of the specified messages on the MAT, then do this step:
- 1) Find the message in the FIM Maintenance Message Index and do the specified task.
- (b) If you do not find any of the specified messages on the MAT, then there was an intermittent fault.

————— END OF TASK —————

A27. Swapping the Actuator Control Electronics (ACEs)

A. Description

This task provides operators with a general procedures for determining whether the ACE is at fault before removal.

B. Fault Isolation Procedure

- (1) When troubleshooting ACE actuator/transducer maintenance messages, swap the ACEs in accordance with the attached Table I before performing the FIM step to replace the ACE.
- (a) To remove each ACE, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (b) To install each ACE, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

NOTE: The Aileron, Elevator, and Rudder actuators and Stabilizer Trim Control Modules have primary and secondary ACEs. When troubleshooting these ACE/Actuator faults, first swap the primary ACE, and run the applicable System Test (Table II). If the fault remains with the same ACE/Actuator, then return the ACEs to their original positions, then swap the secondary ACE.

EFFECTIVITY
ARO ALL

27-02 TASKS A25-A27

D633W103-ARO

Page 298.475
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table I: ACE Swapping

Equip No.	LRU name	Schematic	Primary ACE	Secondary ACE	Recommended ACE to swap with	Post Swap Ground Test(s) (see Table II)
M27321	ACE-C		C	--	L1	1, 2, 8 or 22 as applicable for current fault
M27121	ACE-L1		L1	--	C	
M27122	ACE-L2		L2	--	C	
M27221	ACE-R		R	--	C	
M27108	AILERON PCU - LIB	27-11-12	C	L2	L1 (Primary swap) L1(Secondary swap)	(11 and 30) or (13 and 32) as applicable for current fault
M27107	AILERON PCU - LOB	27-11-11	L2	C	L1 (Primary swap) L1(Secondary swap)	
M27208	AILERON PCU - RIB	27-11-14	R	L1	C (Primary swap) C(Secondary swap)	
M27207	AILERON PCU - ROB	27-11-13	L1	R	C (Primary swap) C(Secondary swap)	
M27139	COL FORCE XDCR - L1	27-31-11	L1	--	L2	5
M27139	COL FORCE XDCR - L2	27-31-12	C	--	L2	5
M27239	COL FORCE XDCR - R1	27-31-13	L2	--	C	5
M27239	COL FORCE XDCR - R2	27-31-14	R	--	C	5
M27134	COL POSN XDCR - L1	27-31-11	L1	--	C	6
M27135	COL POSN XDCR - L2	27-31-12	C	--	L1	6
M27136	COL POSN XDCR - L3	27-31-14	R	--	C	6
M27235	COL POSN XDCR - R1	27-31-12	C	--	L2	6
M27234	COL POSN XDCR - R2	27-31-13	L2	--	C	6
M27236	COL POSN XDCR - R3	27-31-14	R	--	C	6
M27020	ELEV FEEL ACTUATOR-L	27-31-15	L2	--	C	7
M27021	ELEV FEEL ACTUATOR-R	27-31-15	C	--	L2	7
M27112	ELEVATOR PCU -LIB	27-31-12	C	L1	L2 (Primary swap) L2 (Secondary swap)	(14 and 33) or (16 and 35) or (17 and 36) as applicable for current fault
M27111	ELEVATOR PCU- LOB	27-31-11	L1	C	L2 (Primary swap) L2 (Secondary swap)	
M27212	ELEVATOR PCU- RIB	27-31-14	R	L2	C (Primary swap) C (Secondary swap)	
M27211	ELEVATOR PCU- ROB	27-31-13	L2	R	C (Primary swap) C (Secondary swap)	

EFFECTIVITY
ARO ALL

27-02 TASK A27

D633W103-ARO

Page 298.476
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table I: ACE Swapping (Continued)

Equip No.	LRU name	Schematic	Primary ACE	Secondary ACE	Recommended ACE to swap with	Post Swap Ground Test(s) (see Table II)
M27110	FLAPERON PCU - LIB	27-31-16	R	--	C	(18 and 37) or (20 and 39) as applicable for current fault
M27109	FLAPERON PCU - LOB	27-31-15	L1	--	C	
M27210	FLAPERON PCU - RIB	27-31-18	L2	--	L1	
M27209	FLAPERON PCU - ROB	27-31-17	C	--	L1	
M27038	GUST SPRS PRESS XDCR - LWR	27-21-14	L1	--	C	10
M27039	GUST SPRS PRESS XDCR - UPR	27-21-14	C	--	L1	10
M27044	MODAL SPRS ACCEL - L	27-21-17	L2	--	R	21
M27045	MODAL SPRS ACCEL - L	27-21-17	R	--	L2	21
M27137	PEDAL POSN XDCR -L1	27-21-12	L1	--	L2	23
M27138	PEDAL POSN XDCR -L1	27-21-11	C	--	L2	23
M27237	PEDAL POSN XDCR -L1	27-21-13	R	--	C	23
M27238	PEDAL POSN XDCR -L1	27-21-12	L2	--	C	23
M27009	RUDDER PCU - LOWER	27-21-13	R	L1	C (Primary swap) C (Secondary swap)	40 or 42 as applicable for current fault
M27008	RUDDER PCU - MID	27-21-12	L1	C	R (Primary swap) R (Secondary swap)	
M27007	RUDDER PCU - UPPER	27-21-11	C	R	L1 (Primary swap) L1 (Secondary swap)	
M27126	RUDDER TRIM ACTR	27-21-15	L1	R	C (Primary swap) C (Secondary swap) *[1]	43
M27043	RUD TRIM POSN XDCR	27-21-15	R	--	L1	43
M27030	STAB POSN MDL - C	27-41-11	C	--	L1	50
M27015	STAB POSN MDL - L	27-41-11	L1	--	C	50
M27031	STAB POSN MDL - R	27-41-13	R	--	C	50
M27213	STAB TRIM CTRL MOD - R	27-41-13	R	-	C (Primary swap) L1 (Secondary swap)	50
M27313	STAB TRIM CTRL MOD - C	27-41-11	C	-	R (Primary swap) L2 (Secondary swap)	50
M27129	WHL FORCE XDCR - 1	27-11-11	L2	--	C	53
M27129	WHL FORCE XDCR - 2	27-11-12	C	--	L2	53
M27131	WHL POSN XDCR - L1	27-11-13	L1	--	C	54
M27132	WHL POSN XDCR - L2	27-11-12	C	--	L2	54
M27133	WHL POSN XDCR - L3	27-11-14	R	--	C	54

EFFECTIVITY
ARO ALL

27-02 TASK A27

D633W103-ARO

Page 298.477
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Table I: ACE Swapping (Continued)

Equip No.	LRU name	Schematic	Primary ACE	Secondary ACE	Recommended ACE to swap with	Post Swap Ground Test(s) (see Table II)
M27231	WHL POSN XDCR - R1	27-11-11	L2	--	C	54
M27232	WHL POSN XDCR - R2	27-11-12	C	--	L1	54
M27233	WHL POSN XDCR - R3	27-11-14	R	--	C	54
M27140	PITCH RATE XDCR - L1	27-31-16	L1	--	C	55
M27141	PITCH RATE XDCR - L2	27-31-16	L2	--	C	55
M27240	PITCH RATE XDCR - R2	27-31-16	C	--	L1	55
M27241	PITCH RATE XDCR - R1	27-31-16	R	--	L1	55
M27115	SPLR PCU (1)	27-61-15	C	--	R	45 and 47
M27116	SPLR PCU (7)	27-61-15	C	--	R	45 and 47
M27215	SPLR PCU (8)	27-61-15	C	--	R	45 and 47
M27216	SPLR PCU (14)	27-61-15	C	--	R	45 and 47
M27117	SPLR PCU (2)	27-61-11	L1	--	C	45 and 46
M27217	SPLR PCU (13)	27-61-11	L1	--	C	45 and 46
M27114	SPLR PCU (3)	27-61-17	R	--	C	45 and 47
M27118	SPLR PCU (6)	27-61-17	R	--	C	45 and 47
M27214	SPLR PCU (9)	27-61-17	R	--	C	45 and 47
M27218	SPLR PCU (12)	27-61-17	R	--	C	45 and 47
M27119	SPLR PCU (4)	27-61-13	L2	--	C	45 and 48
M27220	SPLR PCU (11)	27-61-13	L2	--	C	45 and 48
M27120	SPLR PCU (5)	27-61-13	L2	--	C	45 and 49
M27219	SPLR PCU (10)	27-61-13	L2	--	C	45 and 49
M27029	SPDBRK LVR XDCR - 1	27-61-11	L1	--	C	44
M27029	SPDBRK LVR XDCR - 2	27-61-13	L2	--	C	44
M27029	SPDBRK LR XDCR - 3	27-61-15	C	--	L1	44
M27029	SPDBRK LR XDCR - 4	27-61-17	R	--	L1	44
M27019	AUTO SPDBRK ACTR	27-61-19	L1	R	C (Primary swap) C (Secondary swap *[1]	44

*[1] When the System Test is rerun, the ACEs being swapped out will not be retested in its new location. If the fault is not set when the system test is rerun, then it should confirm that the fault is with the ACE that was swapped out.

- (2) After swapping the ACEs, perform the corresponding System Test(s) in the attached Table II as indicated in Table I. If the fault moves with the ACE, then the moved ACE is at fault and should be replaced. If the fault remains in the original position, then the actuator/transducer or wiring is at fault. Due to the time required to replace the actuator/transducer, the wiring should be checked the same time with the actuator/transducer replacement.

EFFECTIVITY
ARO ALL

27-02 TASK A27

D633W103-ARO

Page 298.478
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II: Maintenance Access Terminal (MAT) Ground Tests - ATA 27 Flight Controls

1	Actuator Confidence
2	Actuator Control Electronics Monitors
3	Air/Ground System to PFC Interface
4	Alternate Pitch Trim Levers
5	Column Force Transducer
6	Column Position
7	Elevator Feel System
8	Flap/Slat Electronics Unit Interface to ACE
9	Flap/Slat Electronics Unit to PFC Interface
10	Gust Suppression Pressure Transducers
11	Left Aileron Actuator Confidence
12	Left Aileron Alignment
13	Left Aileron Position
14	Left Elevator Actuator Confidence
15	Left Elevator Alignment
16	Left Elevator Oscillation Monitor
17	Left Elevator Position
18	Left Flaperon Actuator Confidence
19	Left Flaperon Alignment
20	Left Flaperon Position
21	Modal Suppression Accelerometer
22	PFC Disconnect Switch
23	Pedal Position
24	Primary Flight Computer Reset
25	Primary Flight Computer Self Test
26	Primary Flight Computer (C) Lane Reset
27	Primary Flight Computer (L) Lane Reset
28	Primary Flight Computer (R) Lane Reset
29	Radio Altimeter Test Inhibit to PFC Interface
30	Right Aileron Actuator Confidence
31	Right Aileron Alignment
32	Right Aileron Position
33	Right Elevator Actuator Confidence
34	Right Elevator Alignment
35	Right Elevator Oscillation Monitor

EFFECTIVITY
ARO ALL

27-02 TASK A27

D633W103-ARO

Page 298.479
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

Table II: Maintenance Access Terminal (MAT) Ground Tests - ATA 27 Flight Controls (Continued)

36	Right Elevator Position
37	Right Flaperon Actuator Confidence
38	Right Flaperon Alignment
39	Right Flaperon Position
40	Rudder Actuator Confidence
41	Rudder Alignment
42	Rudder Position
43	Rudder Trim System
44	Speedbrake System
45	Spoiler 1, 7, 8, 14 System
46	Spoiler 2, 13 System
47	Spoiler 3, 6, 9, 12 System
48	Spoiler 4, 11 System
49	Spoiler 5, 10 System
50	Stabilizer System
51	Transmitter Reset Test
52	Warning Electronic System to PFC Interface
53	Wheel Force Interface
54	Wheel Position
55	Pitch Rate Sensors (777-300 Only)

————— **END OF TASK** —————

A28. Selected Ground Test Failed Because of A Hydraulic Configuration Violation

A. This task is for maintenance message: 27-16000.

B. Initial Evaluation

NOTE: This message can only occur when you do the actuator control electronics (ACE) monitor ground test on the MAT. It occurred because one or more hydraulic system pressure signals was greater than 1000 psi during the test or one or more of hydraulic system pressure signals became invalid during the test.

C. Fault Isolation Procedure

NOTE: Usually no repairs are necessary for this maintenance message. This maintenance message erases automatically when you exit the ground test. If you want to make sure there are no problems, you can do the ground test again, but make sure you perform the test correctly.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-02 TASKS A27-A28

D633W103-ARO

Page 298.480
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

801. Left Inboard Aileron PCU Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10200.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the fault isolation procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
- (c) Disconnect connector DM27108A from the left inboard aileron power control unit (LIB PCU).
- (d) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27108A at the LIB PCU (WDM 27-11-12):

<u>DM27321AA</u>	<u>DM27108A</u>
pin A14	pin 9
pin B14	pin 8

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27108A to the PCU.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 801

D633W103-ARO

Page 201
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27108. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left inboard aileron PCU, M27108. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801

EFFECTIVITY
ARO ALL

27-11 TASK 801

D633W103-ARO

Page 202
May 05/2014



777-200/300
FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

———— **END OF TASK** ————

802. Left Outboard Aileron PCU Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10201.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the fault isolation procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.
- (c) Disconnect connector DM27107A from the left outboard aileron power control unit (LOB PCU).
- (d) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27107A at the LOB PCU (WDM 27-11-11):

DM27122AA	DM27107A
pin A14	pin 9
pin B14	pin 8

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-11 TASKS 801-802

D633W103-ARO

Page 203
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-connect connector DM27107A to the PCU.
- 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - 6) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27122. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left outboard aileron PCU, M27107. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801

EFFECTIVITY
ARO ALL

27-11 TASK 802

D633W103-ARO

Page 204
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

803. Right Inboard Aileron PCU Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10202.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the fault isolation procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf.
- (c) Disconnect connector DM27208A from the right inboard aileron power control unit (RIB PCU).
- (d) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27208A at the RIB PCU (WDM 27-11-14):

DM27221AA	DM27208A
pin A14	pin 9
pin B14	pin 8

EFFECTIVITY
ARO ALL

27-11 TASKS 802-803

D633W103-ARO

Page 205
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27208A to the PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27208. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-11 TASK 803

D633W103-ARO

Page 206
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard aileron PCU, M27208. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

804. Right Outboard Aileron PCU Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10203.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the fault isolation procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf.
- (c) Disconnect connector DM27207A from the right outboard aileron power control unit (ROB PCU).
- (d) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27207A at the ROB PCU (WDM 27-11-13):

EFFECTIVITY
ARO ALL

27-11 TASKS 803-804

D633W103-ARO

Page 207
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27121AA

pin A14 pin 9
pin B14 pin 8

DM27207A

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27207A to the PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.

EFFECTIVITY
ARO ALL

27-11 TASK 804

D633W103-ARO

Page 208
May 05/2014



777-200/300 FAULT ISOLATION MANUAL

- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right outboard aileron PCU, M27207. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

805. Left Flaperon Surface Actuation Confidence Test Failed - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10312, 27-10482, 27-10485, 27-10488.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Examine the two flaperon power control units (PCU) for the left flaperon to see if they are mechanically disconnected from the flaperon or the wing.
 - (a) If a flaperon PCUs is disconnected or damaged, then do these steps:
 - 1) Replace the applicable flaperon PCU, M27109 or M27110. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - a) Repair or replace all other damaged parts.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
- (2) Replace the left 1 actuator control electronics (ACE-L1), M27121. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

EFFECTIVITY
ARO ALL

27-11 TASKS 804-805

D633W103-ARO

Page 209
May 05/2014



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, continue.
- (3) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, continue.
- (5) Do this test of the outboard PCU for the left flaperon:
 - (a) Set the C and R FLT CONTROL HYD VALVE PWR switches for the WING to the SHUTOFF position.
 - (b) Set the L FLT CONTROL HYD VALVE PWR switch for the WING to the NORM position.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (c) For the left hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (d) Look at page 2 of the flight controls maintenance pages on the MFD. To see this page, do this task: Showing a Maintenance Page, AMM TASK 31-61-00-800-804.
- (e) Monitor the left outboard FLAPERON POSITION indication on the maintenance page. At the same time look at the flaperon to see if it moves.
- (f) Turn and hold one of the control wheels fully clockwise.
 - 1) Look at the left flaperon and make sure it is fully down.

NOTE: You do not need to measure the flaperon movement. It is satisfactory if you can see that it moved down.

- 2) Make sure the FLAPERON POSITION indication shows -5.98 to -6.63.

- 3) Make sure the FLAPERON (left outboard) DELTA PRESS or PCU FORCE indication (whichever shows on the maintenance page) shows +5000 to +8000.

NOTE: This shows that the flaperon PCU is fully extended.

For the flaperon PCUs (unlike the other PCUs), the DELTA PRESS indication shows the force that the PCU causes, not the pressure in the PCU. Thus, the indication can show values that are more than the hydraulic system pressure.

EFFECTIVITY
ARO ALL

27-11 TASK 805

D633W103-ARO

Page 210
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (g) Turn and hold one of the control wheels fully counterclockwise.
- 1) Look at the left flaperon and make sure it is fully up.
NOTE: You do not need to measure the flaperon movement. It is satisfactory if you can see that it moved up.
 - 2) Make sure the FLAPERON POSITION indication shows +5.98 to +6.63.
 - 3) Make sure the FLAPERON DELTA PRESS or PCU FORCE indication (whichever shows on the maintenance page) shows -2500 to -5000.
- (h) Release the control wheel.
- 1) Make sure the left flaperon is in the neutral position.
NOTE: You do not need to measure the flaperon position. It is satisfactory if you can see that it is approximately level.
- (i) If the flaperon or the indications did not operate correctly (as specified in the steps above), then do these steps:
- 1) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 2) Remove the ACE-L1, M27121.
- 3) Disconnect connector DM27109 from the left outboard flaperon PCU, M27109.
- 4) Do a wiring check between these pins of connector DM27121AA at the E1-5 shelf and connector DM27109 at the left outboard flaperon PCU, M27109 (WDM 27-11-15):
NOTE: Do a check for a short between the wires.

DM27121AA	DM27109
pin F1	pin 5
pin G1	pin 15
pin K1	pin 19
pin K2	pin 7

- 5) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27109.
 - c) Re-install the ACE-L1, M27121.

EFFECTIVITY
ARO ALL

27-11 TASK 805

D633W103-ARO

Page 211
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- d) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 6) If you no not find a problem with the wiring, then continue.
- 7) Replace the outboard PCU for the left flaperon, M27109. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- 8) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- 9) If the maintenance message does not show on the ground test display, you corrected the fault.
- (j) If the flaperon and the indications operated correctly, then continue.
- (6) Do this test of the inboard PCU on the left flaperon:
- (a) Set the L and C FLT CONTROL HYD VALVE PWR switches for the WING to the SHUTOFF position.
- (b) Set the R FLT CONTROL HYD VALVE PWR switch for the WING to the NORM position.



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (c) For the right hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (d) Look at page 2 of the flight controls maintenance pages on the MFD. To see this page, do this task: Showing a Maintenance Page, AMM TASK 31-61-00-800-804.
- (e) Monitor the left inboard FLAPERON POSITION indication an the maintenance page. At the same time look at the flaperon to see if it moves.
- (f) Turn and hold one of the control wheels fully clockwise.
- 1) Look at the left flaperon and make sure it is fully down.

NOTE: You do not need to measure the flaperon movement. It is satisfactory if you can see that it moved down.

EFFECTIVITY
ARO ALL

27-11 TASK 805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 212
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Make sure the FLAPERON POSITION indication shows -5.98 to -6.63.
 - 3) Make sure the FLAPERON (left inboard) DELTA PRESS or PCU FORCE indication (whichever shows on the maintenance page) shows +5000 to +8000.
- (g) Turn and hold one of the control wheels fully counterclockwise.
- 1) Look at the left flaperon and make sure it is fully up.
NOTE: You do not need to measure the flaperon movement. It is satisfactory if you can see that it moved up.
 - 2) Make sure the FLAPERON POSITION indication shows +5.98 to +6.63.
 - 3) Make sure the FLAPERON DELTA PRESS or PCU FORCE indication (whichever shows on the maintenance page) shows -2500 to -5000.
- (h) Release the control wheel.
- 1) Make sure the left flaperon is in the neutral position.
NOTE: You do not need to measure the flaperon position. It is satisfactory if you can see that it is approximately level.
- (i) If the flaperon or the indications did not operate correctly (as specified in the steps above), then do these steps:
- 1) Open these circuit breakers on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 2) Remove the ACE-R, M27221.
- 3) Disconnect connector DM27110 from the left inboard flaperon PCU, M27110.
- 4) Do a wiring check between these pins of connector DM27221AA at the E5-2 shelf and connector DM27110 at the left inboard flaperon PCU, M27110 (WDM 27-11-16):

NOTE: Do a check for a short between the wires.

DM27221AA	DM27110
pin F1	pin 5
pin G1	pin 15
pin K1	pin 19
pin K2	pin 7

- 5) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27110.
 - c) Re-install the ACE-R, M27221.

EFFECTIVITY
ARO ALL

27-11 TASK 805

D633W103-ARO

Page 213
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- d) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 6) If you no not find a problem with the wiring, then continue.
- 7) Replace the inboard PCU on the left flaperon, M27110. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- 8) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- 9) If the maintenance message does not show on the ground test display, you corrected the fault.
- (j) If the flaperon and the indications operated correctly, then continue.
- (7) Replace the outboard PCU on the left flaperon, M27109. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the inboard PCU on the left flaperon, M27110. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

806. Left Inboard Aileron PCU Ram Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11200.

EFFECTIVITY
ARO ALL

27-11 TASKS 805-806

D633W103-ARO

Page 214
May 05/2014



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) ram feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
- (c) Disconnect connector DM27108A from the left inboard (LIB) aileron PCU.
- (d) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27108A at the LIB PCU (WDM 27-11-12):

DM27321AA	DM27108A
pin E12	pin 19
pin E13	pin 7

- 1) Check for shorts to ground for pins 7 and 19.
 - 2) Check for shorts between pins 7 and 19.
 - 3) Check for shorts between pin 7 and pins 3, 8, 9, 11, 12, 13, 16, 17, and 18.
 - 4) Check for shorts between pin 15 and pins 3, 8, 9, 11, 12, 13, 16, 17, and 18.
- (e) Disconnect connector DM27107B.
 - 1) Check for shorts between pin 7 and DM27107B pins 1 and 2.
 - 2) Check for shorts between pin 19 and DM27107B pins 1 and 2.
 - (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27108A to the PCU.

EFFECTIVITY
ARO ALL

27-11 TASK 806

D633W103-ARO

Page 215
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-connect connector DM27211B.
- 4) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left inboard aileron PCU, M27108. These are the tasks:

EFFECTIVITY
ARO ALL

27-11 TASK 806

D633W103-ARO

Page 216
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
- Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

807. Left Outboard Aileron PCU Ram Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11201.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) ram feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.
- (c) Disconnect connector DM27107A from the left outboard (LOB) aileron PCU.
- (d) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27107A at the LOB PCU (WDM 27-11-11):

DM27122A	DM27107A
pin E12	pin 19
pin E13	pin 7

- 1) Check for shorts to ground for pins 7 and 19.

EFFECTIVITY
ARO ALL

27-11 TASKS 806-807

D633W103-ARO

Page 217
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Check for shorts between pins 7 and 19.
- 3) Check for shorts between pin 7 and pins 3, 8, 9, 11, 12, 13, 16, 17, and 18.
- 4) Check for shorts between pin 15 and pins 3, 8, 9, 11, 12, 13, 16, 17, and 18.
- (e) Disconnect connector DM271087B.
 - 1) Check for shorts between pin 7 and DM27108B pins 1 and 2.
 - 2) Check for shorts between pin 19 and DM27108B pins 1 and 2.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27107A to the PCU.
 - 3) Re-connect connector DM27108B.
 - 4) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

EFFECTIVITY
ARO ALL

27-11 TASK 807

D633W103-ARO

Page 218
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left outboard aileron PCU, M27107. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

808. Right Inboard Aileron PCU Ram Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11202.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) ram feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM

EFFECTIVITY
ARO ALL

27-11 TASKS 807-808

D633W103-ARO

Page 219
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf.
- (c) Disconnect connector DM27208A from the right inboard (RIB) aileron PCU.
- (d) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27208A at the RIB PCU (WDM 27-11-14):

DM27221AA	DM27208A
pin E12	pin 19
pin E13	pin 7

- 1) Check for shorts to ground for pins 7 and 19.
- 2) Check for shorts between pins 7 and 19.
- 3) Check for shorts between pin 7 and pins 3, 8, 9, 11, 12, 13, 16, 17, and 18.
- 4) Check for shorts between pin 15 and pins 3, 8, 9, 11, 12, 13, 16, 17, and 18.
- (e) Disconnect connector DM27207B.
 - 1) Check for shorts between pin 7 and DM27207B pins 1 and 2.
 - 2) Check for shorts between pin 19 and DM27207B pins 1 and 2.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27208A to the PCU.
 - 3) Re-connect connector DM27207B.
 - 4) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-11 TASK 808

D633W103-ARO

Page 220
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard aileron PCU, M27208. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

— END OF TASK —

809. Right Outboard Aileron PCU Ram Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11203.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-11 TASKS 808-809

D633W103-ARO

Page 221
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) ram feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf.
- (c) Disconnect connector DM27207A from the right outboard (ROB) aileron PCU.
- (d) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27207A at the ROB PCU (WDM 27-11-13):

DM27121AA	DM27207A
pin E12	pin 19
pin E13	pin 7

- 1) Check for shorts to ground for pins 7 and 19.
 - 2) Check for shorts between pins 7 and 19.
 - 3) Check for shorts between pin 7 and pins 3, 8, 9, 11, 12, 13, 16, 17, and 18.
 - 4) Check for shorts between pin 19 and pins 3, 8, 9, 11, 12, 13, 16, 17, and 18.
- (e) Disconnect connector DM27208B.
 - 1) Check for shorts between pin 7 and DM27208B pins 1 and 2.
 - 2) Check for shorts between pin 19 and DM27208B pins 1 and 2.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27207A to the PCU.
 - 3) Re-connect connector DM27208B.
 - 4) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 809

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 222
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- If a fault is found, replace the applicable PCU.
 - If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - If a fault is found, repair or replace the applicable wiring.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right outboard aileron PCU, M27207. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801

EFFECTIVITY
ARO ALL

27-11 TASK 809

D633W103-ARO

Page 223
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

810. Left Inboard Aileron PCU EHV Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11206.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) EHV feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
- (c) Disconnect connector DM27108A from the left inboard (LIB) aileron PCU.
- (d) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27108A at the LOB PCU (WDM 27-11-12):

DM27321AA	DM27108A
pin D14	pin 3
pin D15	pin 11

- 1) Check for shorts to ground for pins 3 and 11.
- 2) Check for shorts between pins 3 and 11.

EFFECTIVITY
ARO ALL

27-11 TASKS 809-810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 224
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Check for shorts between pin 3 and pins 7, 8, 9, 12, 13, 16, 17, 18 and 19.
- 4) Check for shorts between pin 11 and pins 7, 8, 9, 12, 13, 16, 17, 18 and 19.
- (e) Disconnect connector DM27107B.
 - 1) Check for shorts between pin 3 and DM27107B pins 1 and 2.
 - 2) Check for shorts between pin 11 and DM27107B pins 1 and 2.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27108A to the PCU.
 - 3) Re-connect connector DM27107B.
 - 4) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) For the ACE-C, M27321, These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the hydraulic fuse. These are the tasks:
 - Hydraulic Fuse Removal, AMM TASK 27-02-35-000-801
 - Hydraulic Fuse Installation, AMM TASK 27-02-35-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-11 TASK 810

D633W103-ARO

Page 225
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left inboard aileron PCU, M27108. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

811. Left Outboard Aileron PCU EHV Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11207.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) EHV feedback wiring:

EFFECTIVITY
ARO ALL

27-11 TASKS 810-811

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 226
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.
- (c) Disconnect connector DM27107A from the left outboard (LOB) aileron PCU.
- (d) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27107A at the LOB PCU (WDM 27-11-11):

DM27122AA	DM27107A

pin D14	pin 3
pin D15	pin 11

- 1) Check for shorts to ground for pins 3 and 11.
 - 2) Check for shorts between pins 3 and 11.
 - 3) Check for shorts between pin 3 and pins 7, 8, 9, 12, 13, 16, 17, 18 and 19.
 - 4) Check for shorts between pin 11 and pins 7, 8, 9, 12, 13, 16, 17, 18 and 19.
- (e) Disconnect connector DM27108B.
- 1) Check for shorts between pin 3 and DM27108B pins 1 and 2.
 - 2) Check for shorts between pin 11 and DM27108B pins 1 and 2.
- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27107A to the PCU.
 - 3) Re-connect connector DM27108B.
 - 4) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.

EFFECTIVITY
ARO ALL

27-11 TASK 811

D633W103-ARO

Page 227
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the hydraulic fuse. These are the tasks:
 - Hydraulic Fuse Removal, AMM TASK 27-02-35-000-801
 - Hydraulic Fuse Installation, AMM TASK 27-02-35-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the left outboard aileron PCU, M27107. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.

EFFECTIVITY
ARO ALL

27-11 TASK 811

D633W103-ARO

Page 228
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

812. Right Inboard Aileron PCU EHV Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11208.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) EHV feedback wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf.
- (c) Disconnect connector DM27208A from the right inboard (RIB) aileron PCU.
- (d) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27208A at the RIB PCU (WDM 27-11-14):

DM27221AA	DM27208A
pin D14	pin 3
pin D15	pin 11

- 1) Check for shorts to ground for pins 3 and 11.
- 2) Check for shorts between pins 3 and 11.
- 3) Check for shorts between pin 3 and pins 7, 8, 9, 12, 13, 16, 17, 18 and 19.

EFFECTIVITY
ARO ALL

27-11 TASKS 811-812

D633W103-ARO

Page 229
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Check for shorts between pin 11 and pins 7, 8, 9, 12, 13, 16, 17, 18 and 19.
- (e) Disconnect connector DM27207B.
 - 1) Check for shorts between pin 3 and DM27207B pins 1 and 2.
 - 2) Check for shorts between pin 11 and DM27207B pins 1 and 2.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27208A to the PCU.
 - 3) Re-connect connector DM27207B.
 - 4) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

EFFECTIVITY
ARO ALL

27-11 TASK 812

D633W103-ARO

Page 230
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard aileron PCU, M27208. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

813. Right Outboard Aileron PCU EHV Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11209.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) EHV feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM

EFFECTIVITY
ARO ALL

27-11 TASKS 812-813

D633W103-ARO

Page 231
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf.
- (c) Disconnect connector DM27207A from the right outboard (RIB) aileron PCU.
- (d) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27207A at the ROB PCU (WDM 27-11-13):

DM27121AA	DM27207A
pin D14	pin 3
pin D15	pin 11

- 1) Check for shorts to ground for pins 3 and 11.
- 2) Check for shorts between pins 3 and 11.
- 3) Check for shorts between pin 3 and pins 7, 8, 9, 12, 13, 16, 17, 18 and 19.
- 4) Check for shorts between pin 11 and pins 7, 8, 9, 12, 13, 16, 17, 18 and 19.
- (e) Disconnect connector DM27208B.
 - 1) Check for shorts between pin 3 and DM27208B pins 1 and 2.
 - 2) Check for shorts between pin 11 and DM27208B pins 1 and 2.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27207A to the PCU.
 - 3) Re-connect connector DM27208B.
 - 4) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-11 TASK 813

D633W103-ARO

Page 232
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right outboard aileron PCU, M27207. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

814. Left Inboard Flaperon PCU Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10300.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-11 TASKS 813-814

D633W103-ARO

Page 233
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf.
- (c) Disconnect connector DM27110 from the left inboard (LIB) flaperon PCU.
- (d) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27110 at the LIB PCU (WDM 27-11-16):

DM27221AA	DM27110
pin F3	pin 9
pin G3	pin 8

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27110 to the PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.

EFFECTIVITY
ARO ALL

27-11 TASK 814

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 234
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left inboard flaperon PCU, M27110. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

815. Left Outboard Flaperon PCU Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10301.

EFFECTIVITY
ARO ALL

27-11 TASKS 814-815

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 235
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf.
- (c) Disconnect connector DM27109 from the left outboard (LOB) flaperon PCU.
- (d) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27109 at the LOB PCU (WDM 27-11-15):

<u>DM27121AA</u>	<u>DM27109</u>
pin F3	pin 9
pin G3	pin 8

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27109 to the PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU

EFFECTIVITY
ARO ALL

27-11 TASK 815

D633W103-ARO

Page 236
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left outboard flaperon PCU, M27109. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.

EFFECTIVITY
ARO ALL

27-11 TASK 815

D633W103-ARO

Page 237
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

816. Right Inboard Flaperon PCU Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10302.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 Actuator control Electronics (ACE-L2), M27122, from the E1-1 shelf.
- (c) Disconnect connector DM27210 from the right inboard flaperon power control unit (RIB PCU).
- (d) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27210 at the RIB PCU (WDM 27-11-18):

DM27122AA	DM27210
pin F3	pin 9
pin G3	pin 8

- (2) If you find a problem with the wiring, then do these steps:
 - (a) Repair the wiring.
 - (b) Re-connect connector DM27210 to the PCU.

EFFECTIVITY
ARO ALL

27-11 TASKS 815-816

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 238
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (d) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) If you do not find a problem with the wiring, then continue.
 - (a) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (b) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard flaperon PCU, M27210. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801

EFFECTIVITY
ARO ALL

27-11 TASK 816

D633W103-ARO

Page 239
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

———— **END OF TASK** ————

817. Right Outboard Flaperon PCU Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10303.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
- (c) Disconnect connector DM27209 from the right outboard flaperon power control unit (ROB PCU).
- (d) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27209 at the ROB PCU (WDM 27-11-17):

DM27321AA	DM27209
pin F3	pin 9
pin G3	pin 8

- (2) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-11 TASKS 816-817

D633W103-ARO

Page 240
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Repair the wiring.
- (b) Re-connect connector DM27209 to the PCU.
- (c) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (d) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) If you do not find a problem with the wiring, then continue.
 - (a) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
 - (c) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
 - (d) If a fault is found, replace the applicable PCU.
 - (e) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (f) If a fault is found, repair or replace the applicable wiring.
 - (g) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (h) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-11 TASK 817

D633W103-ARO

Page 241
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (5) Replace the right outboard flaperon PCU. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

818. Left Inboard Flaperon PCU Ram Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11300.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) ram feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf.
- (c) Disconnect connector DM27110 from the left inboard (LIB) flaperon PCU.
- (d) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27110 at the LIB PCU (WDM 27-11-16):

EFFECTIVITY
ARO ALL

27-11 TASKS 817-818

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 242
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27221AA

pin K1 pin 19
pin K2 pin 7

DM27110

- 1) Check for shorts to ground for pins 7 and 19.
 - 2) Check for shorts between pins 7 and 19.
 - 3) Check for shorts between pin 7 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
 - 4) Check for shorts between pin 19 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27110 to the PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-11 TASK 818

D633W103-ARO

Page 243
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left inboard flaperon PCU, M27110. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

819. Left Outboard Flaperon PCU Ram Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11301.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) ram feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR

EFFECTIVITY
ARO ALL

27-11 TASKS 818-819

D633W103-ARO

Page 244
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf.
- (c) Disconnect connector DM27109 from the left outboard (LOB) flaperon PCU.
- (d) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27109 at the LOB PCU (WDM 27-11-15):

DM27121AA	DM27109
pin K1	pin 19
pin K2	pin 7

- 1) Check for shorts to ground for pins 7 and 19.
 - 2) Check for shorts between pins 7 and 19.
 - 3) Check for shorts between pin 7 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
 - 4) Check for shorts between pin 19 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27109 to the PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-11 TASK 819

D633W103-ARO

Page 245
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left outboard flaperon PCU, M27109. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

820. Right Inboard Flaperon PCU Ram Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11302.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-11 TASKS 819-820

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 246
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) ram feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.
- (c) Disconnect connector DM27210 from the right inboard (RIB) flaperon PCU.
- (d) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27210 at the RIB PCU (WDM 27-11-18):

<u>DM27122AA</u>	<u>DM27210</u>
pin K1	pin 19
pin K2	pin 7

- 1) Check for shorts to ground for pins 7 and 19.
 - 2) Check for shorts between pins 7 and 19.
 - 3) Check for shorts between pin 7 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
 - 4) Check for shorts between pin 19 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27210 to the PCU.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

EFFECTIVITY
ARO ALL

27-11 TASK 820

D633W103-ARO

Page 247
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard flaperon PCU, M27210. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

821. Right Outboard Flaperon PCU Ram Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11303.

EFFECTIVITY
ARO ALL

27-11 TASKS 820-821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 248
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) ram feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
- (c) Disconnect connector DM27209 from the right outboard (ROB) flaperon PCU.
- (d) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27209 at the ROB PCU (WDM 27-11-17):

DM27321AA	DM27209
pin K1	pin 19
pin K2	pin 7

- 1) Check for shorts to ground for pins 7 and 19.
 - 2) Check for shorts between pins 7 and 19.
 - 3) Check for shorts between pin 7 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
 - 4) Check for shorts between pin 19 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27209 to the PCU.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 821

D633W103-ARO

Page 249
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right outboard flaperon PCU, M27209. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801

EFFECTIVITY
ARO ALL

27-11 TASK 821

D633W103-ARO

Page 250
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

822. Left Inboard Flaperon PCU EHV Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11306.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) EHV feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf.
- (c) Disconnect connector DM27110 from the left inboard (LIB) flaperon PCU.
- (d) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27110 at the LIB PCU (WDM 27-11-16):

DM27221AA	DM27110
pin J3	pin 3
pin J4	pin 11

- 1) Check for shorts to ground for pins 3 and 11.
- 2) Check for shorts between pins 3 and 11.

EFFECTIVITY
ARO ALL

27-11 TASKS 821-822

D633W103-ARO

Page 251
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Check for shorts between pin 3 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17, 18 and 19.
- 4) Check for shorts between pin 11 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17, 18 and 19.
- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27110 to the PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the hydraulic fuse. These are the tasks:
 - Hydraulic Fuse Removal, AMM TASK 27-02-35-000-801
 - Hydraulic Fuse Installation, AMM TASK 27-02-35-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-11 TASK 822

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 252
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the left inboard flaperon PCU, M27110. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

823. Left Outboard Flaperon PCU EHV Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11307.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) EHV feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR

EFFECTIVITY
ARO ALL

27-11 TASKS 822-823

D633W103-ARO

Page 253
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 Actuator Control Electronics (ACE-L1), M27121, from the E1-5 shelf.
- (c) Disconnect connector DM27109 from the left outboard flaperon power control unit (LOB PCU).
- (d) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27109 at the PCU (WDM 27-11-15):

DM27121AA	DM27109
pin J3	pin 3
pin J4	pin 11

- 1) Check for shorts to ground for pins 3 and 11.
 - 2) Check for shorts between pins 3 and 11.
 - 3) Check for shorts between pin 3 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17, 18 and 19.
 - 4) Check for shorts between pin 11 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17, 18 and 19.
- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27109 to the PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-11 TASK 823

D633W103-ARO

Page 254
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- b) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the hydraulic fuse. These are the tasks:
 - Hydraulic Fuse Removal, AMM TASK 27-02-35-000-801
 - Hydraulic Fuse Installation, AMM TASK 27-02-35-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the left outboard flaperon PCU, M27109. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-11 TASK 823

D633W103-ARO

Page 255
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

824. Right Inboard Flaperon PCU EHV Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11308.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) EHV feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.
- (c) Disconnect connector DM27210 from the right inboard (RIB) flaperon PCU.
- (d) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27210 at the RIB PCU (WDM 27-11-18):

DM27122AA	DM27210
pin J3	pin 3
pin J4	pin 11

- 1) Check for shorts to ground for pins 3 and 11.
 - 2) Check for shorts between pins 3 and 11.
 - 3) Check for shorts between pin 3 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17, 18 and 19.
 - 4) Check for shorts between pin 11 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17, 18 and 19.
- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27210 to the PCU.

EFFECTIVITY
ARO ALL

27-11 TASK 824

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 256
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard flaperon PCU, M27210. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801

EFFECTIVITY
ARO ALL

27-11 TASK 824

D633W103-ARO

Page 257
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

825. Right Outboard Flaperon PCU EHV Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11309.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) EHV feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
- (c) Disconnect connector DM27209 from the right outboard (ROB) flaperon PCU.
- (d) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27209 at the ROB PCU (WDM 27-11-17):

DM27321AA	DM27209
pin J3	pin 3
pin J4	pin 11

- 1) Check for shorts to ground for pins 3 and 11.
- 2) Check for shorts between pins 3 and 11.

EFFECTIVITY
ARO ALL

27-11 TASKS 824-825

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 258
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Check for shorts between pin 3 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17, 18 and 19.
- 4) Check for shorts between pin 11 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17, 18 and 19.
- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27209 to the PCU.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - (f) If you do not find a problem with the wiring, then continue.
 - (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
 - (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-11 TASK 825

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 259
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right outboard flaperon PCU, M27209. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

826. Left Aileron Surface Actuation Problems - Fault Isolation.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10216.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System test, Left Aileron Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASKS 825-826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 260
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (5) Examine the inboard and outboard PCUs on the left aileron to make sure these parts are not broken or missing:
 - (a) The kick link (1 for each PCU)
NOTE: The kick link is immediately forward of the PCU.
 - (b) The kick link bolts (3 for each PCU)
 - (c) The reaction link (1 for each PCU)
NOTE: The reaction link is the U shaped link that is above the PCU.
 - (d) The reaction link bolt at the aft end of the PCU (1 for each PCU)
 - (e) The bolts for the reaction link end cap (2 for each PCU)
NOTE: The end cap is on the forward right end of the reaction link.
 - (f) The rod end bolt (1 for each PCU)
 - (g) If you find a broken part or if a part is missing, then do these steps:
 - 1) Replace the part. For information about these parts, (AMM TASK 27-11-11-400-801).
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (h) If you do not find a broken part or a part that is missing, then continue.
- (6) Replace the left outboard aileron power control unit (PCU), M27107. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the left inboard aileron PCU, M27108. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

827. Right Aileron Surface Actuation Problems - Fault Isolation.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10217.

EFFECTIVITY
ARO ALL

27-11 TASKS 826-827

D633W103-ARO

Page 261
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Description

- (1) The Right Aileron Surface Actuator Confidence Test failed.

C. Possible Causes

- (1) Right Outboard Aileron Power Control Unit (PCU), M27207
- (2) Right Inboard Aileron PCU, M27208

D. Initial Evaluation

- (1) If the Maintenance Access Terminal (MAT) shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - (a) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the Ground Test Display, then there was an intermittent problem.

E. Fault Isolation Procedure

- (1) Exchange the Actuator Control Electronics (ACE) for M27121. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do the Repair Confirmation at the end of this task.
- (3) Exchange the ACE for M27221. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do the Repair Confirmation at the end of this task.
- (5) Examine the Inboard and Outboard PCUs on the Right Aileron to make sure that these parts are not broken or missing:
 - (a) The kick link (1 for each PCU)
NOTE: The kick link is immediately forward of the PCU.
 - (b) The kick link bolts (3 for each PCU)
 - (c) The reaction link (1 for each PCU)
NOTE: The reaction link is the U shaped link that is above the PCU.
 - (d) The reaction link bolt at the aft end of the PCU (1 for each PCU)
 - (e) The bolts for the reaction link end cap (2 for each PCU)
NOTE: The end cap is on the forward right end of the reaction link.
 - (f) The rod end bolt (1 for each PCU)
 - (g) If you find a broken part or if a part is missing, then do these steps:
 - 1) Replace the part. For information about these parts, refer to Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801.

EFFECTIVITY
ARO ALL

27-11 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 262
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Do the Repair Confirmation at the end of this task.
- (h) If you do not find a broken part or a part that is missing, then continue.
- (6) Replace the Right Outboard Aileron PCU, M27207. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (7) Replace the Right Inboard Aileron PCU, M27208. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
 - (b) If the maintenance message shows on the Ground Test Display, then continue the Fault Isolation at the subsequent step.

— END OF TASK —

828. Left Outboard Aileron PCU Bypass SOV Command Problems - Fault Isolation.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10209.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Do a check for 28 VDC from terminal QA41 of terminal block TB1101 at the E1-1 shelf to structure ground (WDM 27-11-11).
 - (b) If there is not 28 VDC at terminal QA41 of terminal block TB1101, then do these steps:
 - 1) Repair the wiring.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-11 TASKS 827-828

D633W103-ARO

Page 263
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If there is 28 VDC at terminal QA41 of terminal block TB1101, then continue.
- (2) Do this check of the bypass solenoid-operated valve (SOV) control wiring:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.
- (c) Disconnect connector DM27107A from the left outboard aileron power control unit (LOB PCU).
- (d) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27107A at the LOB PCU (WDM 27-11-11):

DM27122AA	DM27107A
pin A13	pin 17

- (e) Do a wiring check between these pins of terminal block TB1101 and connector DM27107A at the PCU (WDM 27-11-11):

TB1101	DM27107A
term QA41	pin 16

- (f) Do a wiring check between pin A7 of connector DM27122AB and structure ground (WDM 27-11-11).
- (g) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27107A to the PCU.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASK 828

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 264
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- b) If the maintenance message shows on the ground test display, then continue.
- (h) If you do not find a problem with the wiring, then continue.
- (3) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the left outboard aileron PCU, M27107. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

829. Left Outboard Flaperon PCU Delta Pressure Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11311.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASKS 828-829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 265
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) delta pressure feedback wiring:

- (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf.
 - (c) Disconnect connector DM27109 from the left outboard (LOB) flap PCU.
 - (d) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27109 at the LOB PCU (WDM 27-11-15):

<u>DM27121AA</u>	<u>DM27109</u>
pin F1	pin 5
pin G1	pin 15

- 1) Check for shorts to ground for pins 5 and 15.
 - 2) Check for shorts between pins 5 and 15.
 - 3) Check for shorts between pin 5 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
 - 4) Check for shorts between pin 15 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27109 to the PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU

EFFECTIVITY
ARO ALL

27-11 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 266
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- 7) If the maintenance message shows on the ground test display, then continue.
 - (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left outboard flaperon PCU, M27109. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASK 829

D633W103-ARO

Page 267
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

830. Left Aileron PCU Ram Transducer Signal Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11204.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.

NOTE: If the EICAS status message FLIGHT CONTROL SYS clears during the test steps, ignore the message and continue with the task.

- (a) If one or more maintenance messages show on the ground test display, then do these steps:

- 1) Find each message in the Maintenance Message Index.
- 2) Do the specified fault isolation task.

- (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.

- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

- (c) If the maintenance message shows on the ground test display, then continue.

- (2) Do a wiring check for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

831. Left Flaperon PCU Ram Transducer Signal Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11304.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.

NOTE: If the EICAS status message FLIGHT CONTROL SYS clears during the test steps, ignore the message and continue with the task.

- (a) If one or more maintenance messages show on the ground test display, then do these steps:

- 1) Find each message in the Maintenance Message Index.
- 2) Do the specified fault isolation task.

EFFECTIVITY
ARO ALL

27-11 TASKS 829-831

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 268
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803
- (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do a wiring check for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

832. Left Outboard Aileron PCU Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11211.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) transducer excitation and ground wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

EFFECTIVITY
ARO ALL

27-11 TASKS 831-832

D633W103-ARO

Page 269
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Disconnect connector D11013P from the left power management panel, P110.
- (c) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.
- (d) Disconnect connector DM27107A from the left outboard (LOB) aileron PCU.
- (e) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27107A at the LOB PCU (WDM 27-11-11):

DM27122AA	DM27107A
pin D12	pin 18
pin E14	pin 12
pin E15	pin 13

- 1) Check for shorts to ground for pins 12, 13 and 18.
- 2) Check for shorts between pins 12, 13 and 18.
- 3) Check for shorts between pin 12 and pins 3, 7, 8, 9, 11, 16, 17 and 19.
- 4) Check for shorts between pin 13 and pins 3, 7, 8, 9, 11, 16, 17 and 19.
- 5) Check for shorts between pin 18 and pins 3, 7, 8, 9, 11, 16, 17 and 19.
- (f) Disconnect connector DM27108B.
 - 1) Check for shorts between pin 12 and DM27108B pins 1 and 2.
 - 2) Check for shorts between pin 13 and DM27108B pins 1 and 2
 - 3) Check for shorts between pin 18 and DM27108B pins 1 and 2
- (g) Do a wiring check between these pins of connector DM27122AB for the ACE-L2 and connector D11013P at the left power management panel, P110 (WDM 27-11-11):

DM27122AB	D11013P
pin A7	pin 2

- (h) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27107A to the PCU.
 - 3) Re-connect connector DM27108B.
 - 4) Re-connect connector D11013P to the left power management panel, P110.
 - 5) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 6) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

EFFECTIVITY
ARO ALL

27-11 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 270
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 7) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (i) If you do not find a problem with the wiring, then continue.
- (j) Re-connect connector DM27107A to the PCU.
- (k) Re-connect connector D11013P to the left power management panel, P110.
- (2) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left outboard aileron PCU, M27107. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801

EFFECTIVITY
ARO ALL

27-11 TASK 832

D633W103-ARO

Page 271
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

833. Left Outboard Flaperon PCU Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11315.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) transducer excitation and ground wiring:
 - (a) Open this circuit breaker on the left power supply assembly (PSA-L) and attach safety tag:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (b) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (c) Remove the left-1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Disconnect connector DM27109 from the left outboard (LOB) flaperon PCU.
- (e) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27109 at the LOB PCU (WDM 27-11-15):

DM27121AA	DM27109
pin J1	pin 18
pin K3	pin 12
pin K4	pin 13

- 1) Check for shorts to ground for pins 12, 13 and 18.
- 2) Check for shorts between pins 12, 13 and 18.
- 3) Check for shorts between pin 12 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.

EFFECTIVITY
ARO ALL

27-11 TASKS 832-833

D633W103-ARO

Page 272
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- 4) Check for shorts between pin 13 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
- 5) Check for shorts between pin 18 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
- (f) Do a wiring check between these pins of connector DM27121AB for the ACE-L1 and connector DM24101AD at the PSA-L (WDM 27-11-15):

DM27121AB

pin B6

DM24101AD

pin 16

- (g) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27109 to the PCU.
 - 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tag and close this circuit breaker on the PSA-L:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
- 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- 8) If the maintenance message shows on the ground test display, then continue.
- (h) If you do not find a problem with the wiring, then continue.
 - (i) Re-connect connector DM27109 to the PCU.
 - (j) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Make sure that the safety tag is removed and this circuit breaker is closed:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-11 TASK 833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 273
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left outboard flaperon PCU, M27109. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

834. Left-1 Wheel Position Transducer Signal Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12003.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the control wheel. To adjust it, do this task: Control Wheel and Cable Adjustment (Rigging), AMM TASK 27-11-00-700-802.
 - (a) If you find a problem with the adjustment, then do these steps:
 - 1) Adjust the transducer.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-11 TASKS 833-834

D633W103-ARO

Page 274
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) If the maintenance message shows on the ground test display, then continue.
- (b) If you do not find a problem with the adjustment, then continue.
- (2) Do this check of the wheel position transducer feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27131 from the disconnect panel on the left end of wheel control rods.
- (d) Do a wiring check between these pins of connector DM27121AC for the ACE-L1 and connector DM27131 (WDM 27-11-13):

DM27121AC	DM27131
pin D3	pin 5
pin E2	pin 6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27131 to the disconnect panel.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.

EFFECTIVITY
ARO ALL

27-11 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 275
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- 7) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27131 to the disconnect panel.
- (3) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Make sure that the safety tags are removed and these circuit breakers are closed on the PSA-L:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left-1 wheel position transducer, M27131. These are the tasks:
 - Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

835. Wheel Position Signals Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12014.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-11 TASKS 834-835

D633W103-ARO

Page 276
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Do this check of the captain's control wheel.
 - (a) Do this task: Control Wheel Force Versus Travel Test, AMM TASK 27-11-00-720-801.
 - (b) If you find a problem, then do these steps:
 - 1) Examine these components, on the captain's side, for damaged parts, loose parts, or for objects that prevent smooth movement. Replace or repair those components that have damage.
 - a) The lateral control mechanism.
 - b) The wheel control cable.
 - c) The wheel control cable pulleys.
 - 2) Adjust the control wheel. To adjust it, do this task: Control Wheel and Cable Adjustment (Rigging), AMM TASK 27-11-00-700-802.
 - 3) Do this ground test on the MAT: 27-Primary Flight Controls, System test, Wheel Position.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If you did not find a problem, then continue.
- (2) Do this check of the first officer's control wheel.
 - (a) Do this task: Control Wheel Force Versus Travel Test, AMM TASK 27-11-00-720-801.
 - (b) If you find a problem, then do these steps:
 - 1) Examine these components, on the first officer's side, for damaged parts, loose parts, or for objects that prevent smooth movement. Replace or repair those components that have damage.
 - a) The lateral control mechanism.
 - b) The wheel control cable.
 - c) The wheel control cable pulleys.
 - 2) Adjust the control wheel. To adjust it, do this task: Control Wheel and Cable Adjustment (Rigging), AMM TASK 27-11-00-700-802.
 - 3) Do this ground test on the MAT: 27-Primary Flight Controls, System test, Wheel Position.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If you did not find a problem, then continue.
- (3) For the captain's Wheel Jam Breakout Mechanism, do this task: Force Limiter Operational Test, AMM TASK 27-11-00-700-807.
 - (a) If you find a problem, then do these steps:
 - 1) Replace the wheel jam breakout mechanism. These are the tasks:
 - Force Limiter Removal, AMM TASK 27-11-07-000-801
 - Force Limiter Installation, AMM TASK 27-11-07-400-801
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System test, Wheel Position.

EFFECTIVITY
ARO ALL

27-11 TASK 835

D633W103-ARO

Page 277
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If the maintenance message does not show on the ground test display, you corrected the fault.
- (b) If you did not find a problem, then continue.
- (4) For the First Officer's Wheel Jam Breakout Mechanism, do this task: Force Limiter Operational Test, AMM TASK 27-11-00-700-807.
 - (a) If you find a problem, then do these steps:
 - 1) Replace the Wheel Jam Breakout Mechanism. These are the tasks:
 - Force Limiter Removal, AMM TASK 27-11-07-000-801
 - Force Limiter Installation, AMM TASK 27-11-07-400-801
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System test, Wheel Position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (b) If you did not find a problem, then continue.
- (5) Adjust the control wheel. To adjust it, do this task: Control Wheel and Cable Adjustment (Rigging), AMM TASK 27-11-00-700-802.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System test, Wheel Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

836. Left Outboard Aileron PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15022.

B. Initial Evaluation

- (1) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)

- (a) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR

EFFECTIVITY
ARO ALL

27-11 TASKS 835-836

D633W103-ARO

Page 278
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Disconnect connector D11013P from the left power management panel, P110.
- (c) Disconnect connector DM27107A from the left outboard aileron power control unit (LOB PCU), M27107.
- (d) Disconnect connector DM27108B from the left inboard aileron power control unit (LIB PCU), M27108.
- (e) Do a wiring check between these pins of connector DM27107A for the LOB PCU and connector D11013P at the P110 (WDM 27-11-11):

DM27107A	D11013P
pin 16	pin 1

- (f) Do a wiring check between these pins of connector DM27108B for the LIB PCU and connector D11013P at the P110 (WDM 27-11-11):

DM27108B	D11013P
pin 1	pin 1

- (g) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27107A to the LOB PCU.
 - 3) Re-connect connector DM27108B to the LIB PCU.
 - 4) Re-connect connector D11013P to the P110.
 - 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (h) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-11 TASK 836

D633W103-ARO

Page 279
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) Replace this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)

- (a) These are the tasks:
- Circuit Breaker - Removal, AMM TASK 24-09-00-000-818-002
 - Circuit Breaker - Installation, AMM TASK 24-09-00-400-814-002
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Exchange the ACE for M27107. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the left outboard aileron PCU, M27107. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (7) Replace the left inboard aileron PCU, M27108. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-11 TASK 836

D633W103-ARO

Page 280
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

837. Left Outboard Flaperon PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15026.

B. Initial Evaluation

- (1) Close this circuit breaker on the left power supply assembly (PSA-L), M24101:
- (a) A5, FLPRN PCU
 - (b) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
- (a) Open this circuit breaker on the left power supply assembly (PSA-L) and attach safety tag:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- (c) Remove the PSA-L, M24101, from the E1-6 shelf.
- (d) Remove connector DM27109 from the left outboard flaperon power control unit (LOB PCU), M27109.
- (e) Do a wiring check between these pins of connector DM27109 for the LOB PCU and connector DM24101AD at the PSA-L (WDM 27-11-15):

DM27109	DM24101AD
pin 16	pin 22

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27109 to the LOB PCU, M27109.
 - 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

EFFECTIVITY
ARO ALL

27-11 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 281
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- 5) Remove the safety tag and close this circuit breaker on the PSA-L:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-L, M24101. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Replace the LOB PCU, M27109. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

838. Wheel Force Transducer Signal Disagreement - Fault Isolation

A. **Maintenance Messages**

- (1) This task is for maintenance message: 27-12502.

EFFECTIVITY
ARO ALL

27-11 TASKS 837-838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 282
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Force Transducer.
 - (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.

————— END OF TASK —————

839. Left Outboard Aileron PCU Ram Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16034.

B. Initial Evaluation

NOTE: This message can only occur when you do the Left Aileron Position ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) For the left outboard aileron power control unit (PCU), do this task: Aileron Adjustment (Rigging), AMM TASK 27-11-00-820-802.
 - (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Aileron Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-11 TASKS 838-839

D633W103-ARO

Page 283
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.
- (c) Disconnect connector DM27107A from the left outboard aileron power control unit (LOB PCU).
- (d) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27107A at the LOB PCU (WDM 27-11-11):

DM27122AA	DM27107A
pin E12	pin 19
pin E13	pin 7

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27107A to the PCU.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27107A to the PCU.
- (4) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 839

D633W103-ARO

Page 284
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Aileron Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left outboard aileron PCU, M27107. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Aileron Actuator Confidence.
- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Aileron Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

840. Left Outboard Flaperon PCU Ram Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16038.

B. Initial Evaluation

NOTE: This message can only occur when you do the Left Flaperon Position ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) For the left outboard flaperon power control unit (PCU), do this task: Flaperon Adjustment (Rigging), AMM TASK 27-11-00-820-803.
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Flaperon Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-11 TASKS 839-840

D633W103-ARO

Page 285
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27109 from the outboard power control unit (PCU) on the left flaperon.
- (d) Do a wiring check between these pins of connector DM27121AA (for ACE-L1) and connector DM27109 (at the flaperon PCU) (WDM 27-11-15):

DM27121AA	DM27109
pin K2	pin 7
pin K1	pin 19

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27109 to the outboard PCU on the left flaperon.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27109 to the outboard PCU on the left flaperon.

EFFECTIVITY
ARO ALL

27-11 TASK 840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 286
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (3) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Make sure that the safety tags are removed and these circuit breakers are closed on the PSA-L:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Flaperon Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left outboard flaperon PCU, M27109. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Flaperon Actuator Confidence.
- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Flaperon Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-11 TASK 840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 287
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

841. Wheel Force Transducer (#1) Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16023.

B. Initial Evaluation

NOTE: This message can only occur when you do the Wheel Force Transducer ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Look at the Flight Controls Maintenance Page 1 on the MFD. To see this page, do this task:
Showing a Maintenance Page, AMM TASK 31-61-00-800-804.
- (2) Do the steps that follow to apply a force to the Captains control wheels and at the same time monitor the values for the WHEEL POSITIONS and the WHEEL FORCES on the Flight Controls Maintenance Page 1.
 - (a) Release the Captains control wheel to the neutral position.
 - 1) Make sure the two WHEEL FORCE indications, on the maintenance page 1, show between -1.00 and 1.00.

NOTE: The two wheel force transducers are contained in a single part. Each will give approximately the same indication as the other.
 - (b) Turn the control wheel fully counterclockwise.
 - 1) Make sure the two WHEEL FORCE indications show between -24.00 and -10.00.
 - (c) Turn the Captains control wheel fully clockwise.
 - 1) Make sure the two WHEEL FORCE indications show between 10.00 and 24.00.
 - (d) Release the Captains control wheels.
- (3) Do the steps that follow to apply a force to the First Officers control wheels and at the same time monitor the values for the WHEEL POSITIONS and the WHEEL FORCES on the Flight Controls Maintenance Page 1.
 - (a) Release the First Officers control wheel to the neutral position.
 - 1) Make sure the two WHEEL FORCE indications, on the maintenance page 1, show between -1.00 and 1.00.

NOTE: The two wheel force transducers are contained in a single part. Each will give approximately the same indication as the other.
 - (b) Turn the First Officers control wheel fully counterclockwise.
 - 1) Make sure the two WHEEL FORCE indications show between -24.00 and -10.00.
 - (c) Turn the First Officers control wheel fully clockwise.
 - 1) Make sure the two WHEEL FORCE indications show between 10.00 and 24.00.
 - (d) Release the First Officers control wheels.
- (4) If you find a problem with indication, then do these steps.
 - (a) Do this task: Control Wheel Force Versus Travel Test, AMM TASK 27-11-00-720-801.
 - (b) If the wheel force transducers do not operate as specified in the task, then do these steps:
 - 1) Replace the wheel force transducer, M27129. These are the tasks:
 - Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801

EFFECTIVITY
ARO ALL

27-11 TASK 841

D633W103-ARO

Page 288
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Control Wheel Force Transducer Test, AMM TASK 27-11-00-710-802.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (c) If the wheel force transducers operate as specified in the task, then continue.
- (5) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27129A from the disconnect panel.
- (d) Do a wiring check between these pins of connector DM27122AC for the ACE-L2 and connector DM27129A (WDM 27-11-11):

DM27122AC	DM27129A
pin C10	pin 5
pin C11	pin 6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27129 to the disconnect panel.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11

EFFECTIVITY
ARO ALL

27-11 TASK 841

D633W103-ARO

Page 289
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Control Wheel Force Transducer Test, AMM TASK 27-11-00-710-802.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- 7) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27129 to the disconnect panel.
- (6) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Control Wheel Force Transducer Test, AMM TASK 27-11-00-710-802.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the wheel force transducer, M27129. These are the tasks:
 - Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Control Wheel Force Transducer Test, AMM TASK 27-11-00-710-802.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

842. LOB Flaperon PCU Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16012.

EFFECTIVITY
ARO ALL

27-11 TASKS 841-842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 290
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: This message can only occur when you do the Left Flaperon Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: Select NO if you can not align them. If you select YES this test will pass and the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Alignment.

NOTE: This ground test adjusts (rigs) the flaperon. AMM 27-11-00/501 contains information that will help you do this ground test.

- (a) If you could adjust the flaperon correctly during the ground test, then you corrected the fault.
 - (b) If you could not adjust the flaperon correctly during the ground test, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left outboard power control unit (LOB PCU), M27109. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

843. Wheel Position Transducer Multiple Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-12006, 27-12013.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the FIM Maintenance Message Index.
 - 2) Do the specified fault isolation task.

EFFECTIVITY
ARO ALL

27-11 TASKS 842-843

D633W103-ARO

Page 291
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.

————— END OF TASK —————

844. Left Outboard Aileron PCU Blocking Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10205.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Do a check for 28 VDC from terminal QB53 of terminal block TB2501 at the E2-5 shelf to structure ground (WDM 27-11-12).
 - (b) If there is not 28 VDC at terminal QB53 of terminal block TB2501, then do these steps:
 - 1) Remove the center power supply assembly (PSA-C), M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of terminal block TB2501 at the E2-5 shelf and the connector DM24301AD at the E2-6 shelf (WDM 27-11-12):

TB2501

DM24301AD

term QB53 pin 10

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Confidence.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then continue.
- 5) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Confidence.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-11 TASKS 843-844

D633W103-ARO

Page 292
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) If the maintenance message shows on the ground test display, then continue.
- (c) If there is 28 VDC at terminal QB53 of terminal block TB2501, then continue.
- (2) Do this check of the control wiring for the blocking solenoid-operated valve (SOV):
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
- (c) Disconnect connector DM27107B from the left outboard aileron power control unit (LOB PCU).
- (d) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27107B at the LOB PCU (WDM 27-11-12):

DM27321AA	DM27107B
pin A15	pin 2

- (e) Do a wiring check between these pins of terminal block TB2501 and connector DM27107B at the PCU (WDM 27-11-12):

TB2501	DM27107B
term QB53	pin 1

- (f) Do a check for continuity between pin A7 of connector DM27321AB and structure ground (WDM 27-11-12).
- (g) If there is no continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27107B to the PCU.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

EFFECTIVITY
ARO ALL

27-11 TASK 844

D633W103-ARO

Page 293
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (h) If there is a continuity, then continue.
- (3) Install a new ACE-C, M27321 (AMM TASK 27-02-02-400-803).
 - (a) Re-connect connector DM27107B to the PCU.
 - (b) Make sure that the safety tags are removed and these circuit breakers are closed on the PSA-C:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Confidence.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the LOB PCU, M27107. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-11 TASK 844

D633W103-ARO

Page 294
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

845. Left Outboard Flaperon PCU Bypass Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10305.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
 - (a) Open this circuit breaker on the PSA-L and attach safety tag:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (b) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (c) Remove the left-1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector DM27121AB for the ACE-L1 and connector DM24101AD at the PSA-L (WDM 27-11-15):

DM27121AB	DM24101AD
pin B6	pin 16

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close this circuit breaker on the PSA-L:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

EFFECTIVITY
ARO ALL

27-11 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 295
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- 7) If the maintenance message does not show on the ground test display, you corrected the fault.

- (f) If you do not find a problem with the wiring, then continue.

- (2) Do this check of the wiring:

- (a) Disconnect connector DM27109 from the left outboard (LOB) flaperon PCU.
- (b) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27109 at the LOB PCU (WDM 27-11-15):

DM27121AA	DM27109
pin F2	pin 17

- (c) Do a wiring check between these pins of connector DM24101AD for the PSA-L and connector DM27109 at the LOB PCU (WDM 27-11-15):

DM24101AD	DM27109
pin 22	pin 16

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27109 to the PCU.
 - 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Make sure that the safety tag is removed and the circuit breaker on the PSA-L is closed:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- 7) If the maintenance message does not show on the ground test display, you corrected the fault.

- (e) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-11 TASK 845

D633W103-ARO

Page 296
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Install a new ACE-L1, M27121 (AMM TASK 27-02-02-400-803).
- (a) Re-connect connector DM27109 to the PCU.
 - (b) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (c) Make sure that the safety tag is removed and the circuit breaker on the PSA-L is closed:
- Power Supply Assembly Left, M24101**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|---------------|
| D | 8 | CBD8-L | PFC BAT INTLK |
- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (f) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the PSA-L, M24101. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the left outboard flaperon PCU, M27109. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-11 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 297
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

846. Left-1 Wheel Position Transducer Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12000.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wheel position transducer excitation and feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27131 (the connector for the left-1 wheel position transducer) from the disconnect panel on the left end of wheel control rods.
- (d) Do a wiring check between these pins of connector DM27121AC at the E1-5 shelf and connector DM27131 at the transducer (WDM 27-11-13):

DM27121AC		DM27131
pin D1	.....	pin 9
pin D3	.....	pin 5
pin E1	.....	pin 8
pin E2	.....	pin 6
pin E3	.....	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27131 to the disconnect panel.

EFFECTIVITY
ARO ALL

27-11 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect connector DM27131 to the disconnect panel.
 - (b) Make sure that the safety tags are removed and these circuit breakers are closed on the PSA-L:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the left-1 wheel position transducer, M27131. These are the tasks:
- Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.

EFFECTIVITY
ARO ALL

27-11 TASK 846

D633W103-ARO

Page 298.1
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

847. Left Flaperon Surface Delta Pressure Signal Difference Out of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10314.

B. Initial Evaluation

- (1) Make sure that the primary flight computer (PFC) is in NORMAL mode.
- (2) Pressurize all the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (a) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (3) Turn and hold the control wheel fully left.
 - (a) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (4) Turn and hold the control wheel fully right.
 - (a) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display (on the MAT).
- (5) If the MAT shows ACTIVE for the maintenance message during the steps above, then do the Fault Isolation Procedure below.
- (6) If the MAT shows NOT ACTIVE for the maintenance message during all the steps above, then there was an intermittent fault.
 - (a) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Alignment.

NOTE: This ground test adjusts (rigs) the Flaperon. AMM 27-11-00/501 contains information that will help you do this ground test.

- (a) Make sure that the primary flight computer (PFC) is in NORMAL mode.
- (b) Pressurize all the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (c) Turn and hold the control wheel fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (d) Turn and hold the control wheel fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (e) If the maintenance message does not show on the MAT, you corrected the fault.

EFFECTIVITY
ARO ALL

27-11 TASKS 846-847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.2
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (f) If the maintenance message shows on the MAT, then continue.
- (2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - (b) If no maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Pressurize all hydraulic systems power. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (b) Turn and hold the control wheel fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (c) Turn and hold the control wheel fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (e) If the maintenance message shows on the MAT, then continue.
- (5) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (6) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Pressurize all hydraulic systems power. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (b) Turn and hold the control wheel fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (c) Turn and hold the control wheel fully right.

EFFECTIVITY
ARO ALL

27-11 TASK 847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.3
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (e) If the maintenance message shows on the MAT, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the left outboard flaperon power control unit (PCU), M27109. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - (a) Pressurize all hydraulic systems power. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (b) Turn and hold the control wheel fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (c) Turn and hold the control wheel fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (e) If the maintenance message shows on the MAT, then continue.
- (9) Replace the left inboard flaperon PCU, M27110. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - (a) Pressurize all hydraulic systems power. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.

EFFECTIVITY
ARO ALL

27-11 TASK 847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.4
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Turn and hold the control wheel fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (c) Turn and hold the control wheel fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. (Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808).

————— END OF TASK —————

848. Left Flaperon Surface Delta Pressure Signal Difference Out Of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10316.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Alignment.

NOTE: This ground test adjusts (rigs) the Flaperon. AMM 27-11-00/501 contains information that will help you do this ground test.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-11 TASKS 847-848

D633W103-ARO

Page 298.5
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (6) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the left outboard flaperon power control unit (PCU), M27109. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the left inboard flaperon PCU, M27110. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

849. Right-1 Wheel Position Transducer Signal Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12010.

EFFECTIVITY
ARO ALL

27-11 TASKS 848-849

D633W103-ARO

Page 298.6
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this task: Control Wheel and Cable Adjustment (Rigging), AMM TASK 27-11-00-700-802.
 - (a) If you find a problem with the adjustment, then do these steps:
 - 1) Do this task: Wheel Position Transducer (LVDT) Adjustment, AMM TASK 27-11-00-820-801.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
 - (b) If you do not find a problem with the adjustment, then continue.
- (2) Do this check of the wheel position transducer feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27231 from the disconnect panel on the right end of wheel control rods.
- (d) Do a wiring check between these pins of connector DM27122AC for the ACE-L2 and connector DM27231 (WDM 27-11-11):

DM27122AC	DM27231
pin F15	pin 5
pin G15	pin 6

- (e) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-11 TASK 849

D633W103-ARO

Page 298.7
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-connect connector DM27231 to the disconnect panel.
- 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 7) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27231 to the disconnect panel.
- (3) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right-1 wheel position transducer, M27231. These are the tasks:
- Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.

EFFECTIVITY
ARO ALL

27-11 TASK 849

D633W103-ARO

Page 298.8
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

850. Right-2 Wheel Position Transducer Signal Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12011.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do the control wheel adjustment procedure. To do this check, do this task: Control Wheel and Cable Adjustment (Rigging), AMM TASK 27-11-00-700-802.
- (a) If you find a problem with the adjustment, then do these steps:
- 1) Adjust the transducer. To adjust it, do this task: Wheel Position Transducer (LVDT) Adjustment, AMM TASK 27-11-00-820-801.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (b) If you do not find a problem with the adjustment, then continue.
- (2) Do this check of the wheel position transducer feedback wiring:
- (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27232 from the disconnect panel on the right end of wheel control rods.

EFFECTIVITY
ARO ALL

27-11 TASKS 849-850

D633W103-ARO

Page 298.9
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins of connector DM27321AC for the ACE-C and connector DM27232 (WDM 27-11-12):

DM27321AC	DM27232
pin D3	pin 6
pin E2	pin 5

- (e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27232 to the disconnect panel.
- 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 7) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27232 to the disconnect panel.
- (3) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Make sure that the safety tags are removed and these circuit breakers are closed on the PSA-C:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.

EFFECTIVITY
ARO ALL

27-11 TASK 850

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.10
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right-2 wheel position transducer, M27232. These are the tasks:
 - Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

851. Wheel Force Transducer Assembly #1 Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12500.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Force Transducer.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Force Transducer.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the wheel force transducer, M27129. These are the tasks:
 - Wheel Force Transducer - Removal, AMM TASK 27-11-08-000-801
 - Wheel Force Transducer - Installation, AMM TASK 27-11-08-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Force Transducer.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-11 TASKS 850-851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.11
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) Repair the excitation and feedback wiring for the force transducer:
 - (a) Repair the wiring between these pins of connector DM27122AC for the ACE-L2 and connector DM27129A for the force transducer (WDM 27-11-11):

DM27122AC	DM27129A
pin A11	pin 9
pin A10	pin 8
pin C10	pin 5
pin B11	pin 1
pin C11	pin 6

- 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Force Transducer.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

852. Control Wheels Do Not Move Freely/Ratcheting Feeling On The Control Wheel – Fault Isolation

A. Initial Evaluation

- (1) Operate Captain's control wheel several times.
- (2) Operate First Officer's control wheel several times.
 - (a) If the control wheels do not move freely, then do the Fault Isolation Procedure below.
 - (b) If the control wheels move freely, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) Do a check of Control Wheel Force and Travel Test. To check it, do this task: Control Wheel Force Versus Travel Test, AMM TASK 27-11-00-720-801.
 - (a) If you find a problem, then do these steps.
 - 1) Examine these components for damaged parts, loose parts, or for objects that prevent smooth movement. Replace or repair those components that have damage.
 - a) The lateral control mechanism.
 - b) The wheel control cables.
 - c) The wheel control cable pulleys.
 - d) The force limiters.
 - e) The spoiler cables.
 - f) The spoiler control mechanism for the mechanical spoilers (#4 & #11).
 - g) The spoiler PCU quadrants.
 - h) The spoiler PCU quadrant pushrods (bearings).
 - i) The mechanical spoilers (#4 & #11) PCUs.
 - 2) Do a check of Control Wheel Adjustment. To adjust it, do this task: Control Wheel and Cable Adjustment (Rigging), AMM TASK 27-11-00-700-802.
 - 3) Do a check of Spoiler Control Cable Adjustment. To adjust it, do this task: Control Cable Adjustment (Rigging) for Spoilers 4 and 11, AMM TASK 27-61-00-820-801.
 - 4) Do a check of the control wheel damper. Do this task: (Control Wheel Damper Test, AMM TASK 27-11-00-700-806).

EFFECTIVITY
ARO ALL

27-11 TASKS 851-852

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.12
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) If necessary, replace the control wheel damper (AMM TASK 27-11-03-000-801).
- 5) Operate control wheels several times.
- 6) If the control wheels move freely, you corrected the fault.

————— **END OF TASK** —————

853. Aileron Trim Failed To Trim In Left Wing Down Direction - Fault Isolation

A. Initial Evaluation

- (1) Look for the maintenance message AIL TRIM CB OPEN on the MAT.
 - (a) If the message shows on the MAT, then do the corrective action for the message.
 - (b) If the message does not show on the MAT, then continue.
- (2) Move aileron trim switches on aft aisle stand panel, P8, in "LEFT WING DOWN" direction.
 - (a) If the control wheels do not turn clockwise, then do the Fault Isolation Procedure below.
 - (b) If the control wheels turn correctly, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) Replace the aileron/rudder trim control panel, M27036, at aft aisle stand, P8. These are the tasks:
 - Rudder and Aileron Trim Module - Removal, AMM TASK 27-21-08-000-801
 - Rudder and Aileron Trim Module - Installation, AMM TASK 27-21-08-400-801
 - (a) Move the aileron trim switches on aft aisle stand panel, P8, in "RIGHT WING DOWN" direction and then "LEFT WING DOWN" direction.
 - (b) If the control wheels turn counterclockwise and then clockwise, you corrected the fault.

————— **END OF TASK** —————

854. Aileron Trim Failed To Trim In Right Wing Down Direction - Fault Isolation

A. Initial Evaluation

- (1) Look for the maintenance message AIL TRIM CB OPEN on the MAT.
 - (a) If the message shows on the MAT, then do the corrective action for the message.
 - (b) If the message does not show on the MAT, then continue.
- (2) Move aileron trim switches on aft aisle stand panel, P8, in "RIGHT WING DOWN" direction.
 - (a) If the control wheels do not turn counterclockwise, then do the Fault Isolation Procedure below.
 - (b) If the control wheels turn correctly, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) Replace the aileron/rudder trim control panel, M27036, at aft aisle stand, P8. These are the tasks:
 - Rudder and Aileron Trim Module - Removal, AMM TASK 27-21-08-000-801
 - Rudder and Aileron Trim Module - Installation, AMM TASK 27-21-08-400-801
 - (a) Move the aileron trim switches on aft aisle stand panel, P8, in "RIGHT WING DOWN" direction and then "LEFT WING DOWN" direction.

EFFECTIVITY
ARO ALL

27-11 TASKS 852-854

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.13
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the control wheels turn counterclockwise and then clockwise, you corrected the fault.

— END OF TASK —

855. Aileron Trim Failed To Trim In Either Direction - Fault Isolation

A. Initial Evaluation

- (1) Look for the maintenance message AIL TRIM CB OPEN on the MAT.
 - (a) If the message shows on the MAT, then do the corrective action for the message.
 - (b) If the message does not show on the MAT, then continue.
- (2) Move aileron trim switches on aft aisle stand panel, P8, in "RIGHT WING DOWN" direction and then "LEFT WING DOWN" direction.
 - (a) If the control wheels do not turn counterclockwise and then clockwise, then do the Fault Isolation Procedure below.
 - (b) If the control wheels turn correctly, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) Do a check of the linkage between trim actuator and lateral control input shaft.
 - (a) If you find a problem, then do these steps.
 - 1) Replace or repair aileron trim parts as necessary.
 - 2) Move the aileron trim switches on aft aisle stand panel, P8, in "RIGHT WING DOWN" direction and then "LEFT WING DOWN" direction.
 - 3) If the control wheels turn correctly, you corrected the fault.
 - (b) If you do not find a problem, then continue.
- (2) Do this check of voltage at connector DM27127 for aileron trim actuator:
 - (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	18	C27625	AIL TRIM ACTR

- (b) Disconnect connector DM27127 from aileron trim actuator.
- (c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	18	C27625	AIL TRIM ACTR

- (d) Place the aileron trim switches on aft aisle stand panel, P8, to "RIGHT WING DOWN" and hold.
- (e) Do a check of 28 VDC between pin 1 and pin 5 of connector DM27127 (WDM 27-11-19).
- (f) If there is 28 VDC between pin 1 and pin 5 of DM27127, then do these steps:
 - 1) Replace the aileron trim actuator, M27127. These are the tasks:
 - Aileron Trim Actuator - Removal, AMM TASK 27-11-09-000-801
 - Aileron Trim Actuator - Installation, AMM TASK 27-11-09-400-801
 - 2) Move the aileron trim switches on aft aisle stand panel, P8, in "RIGHT WING DOWN" direction and then "LEFT WING DOWN" direction.

EFFECTIVITY
ARO ALL

27-11 TASKS 854-855

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.14
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If the control wheels turn correctly, you corrected the fault.
- (g) If there is not 28 VDC between pin 1 and pin 5 of DM27127, then do these steps:
- 1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 2) Disconnect connector DM27036A from aileron/rudder trim control panel, M27036.
- 3) Disconnect connector D11013P from left power management panel, P110.
- 4) Do a wiring check between these pins of connector DM27127 for the aileron trim actuator and connector DM27036A for the aileron/rudder trim control panel, M27036 (WDM 27-11-19):

DM27127	DM27036A
pin 1	pin 10
pin 5	pin 12

- 5) Do a wiring check between these pins of connector D11013P for the P110 and connector DM27036A for the aileron/rudder trim control panel, M27036 (WDM 27-11-19):

D11013P	DM27036A
pin 16	pin 11
pin 18	pin 3

- 6) If you find a problem with the wiring, then do these steps:
- a) Repair the wiring.
- b) Re-connect connector D11013P.
- c) Re-connect connector DM27036A.
- d) Re-connect connector DM27127.
- e) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

EFFECTIVITY
ARO ALL

27-11 TASK 855

D633W103-ARO

Page 298.15
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- f) Move the aileron trim switches on aft aisle stand panel, P8, in "RIGHT WING DOWN" direction and then "LEFT WING DOWN" direction.
- g) If the control wheels turn correctly, you corrected the fault.
- 7) If you do not find a problem with the wiring, then do these steps:
 - a) Replace the aileron/rudder trim control panel, M27036, at aft aisle stand, P8.
 - b) Re-connect connector D11013P.
 - c) Re-connect connector DM27036A.
 - d) Re-connect connector DM27127.
 - e) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- f) Move the aileron trim switches on aft aisle stand panel, P8, in "RIGHT WING DOWN" direction and then "LEFT WING DOWN" direction.
- g) If the control wheels turn correctly, you corrected the fault.

————— **END OF TASK** —————

856. Flaperon PCU (Left inboard) Actuation Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10308, 27-10483, 27-10486.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the left inboard flaperon power control unit (PCU), M27110. To adjust it, do this task: Flaperon Adjustment (Rigging), AMM TASK 27-11-00-820-803.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-11 TASKS 855-856

D633W103-ARO

Page 298.16
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left inboard flaperon PCU, M27110. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27110 from the left inboard flaperon PCU, M27110.
- (d) Do a wiring check between these pins of connector DM27221AA at the E5-2 shelf and connector DM27110 at the left inboard flaperon PCU, M27110 (WDM 27-11-16):

DM27221AA	DM27110
pin F1	pin 5
pin G1	pin 15
pin K1	pin 19
pin K2	pin 7

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-11 TASK 856

D633W103-ARO

Page 298.17
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-connect connector DM27110.
- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

857. Flaperon PCU Actuation (Left Outboard) Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10309, 27-10484, 27-10487.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the left outboard flaperon power control unit (PCU), M27109. To adjust it, do this task: Flaperon Adjustment (Rigging), AMM TASK 27-11-00-820-803.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801

EFFECTIVITY
ARO ALL

27-11 TASKS 856-857

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.18
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left outboard flaperon PCU, M27109. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and install safety tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27109 from the left outboard flaperon PCU, M27109.
- (d) Do a wiring check between these pins of connector DM27121AA at the E1-5 shelf and connector DM27109 at the left outboard flaperon PCU, M27109 (WDM 27-11-15):

DM27121AA	DM27109
pin F1	pin 5
pin G1	pin 15
pin K1	pin 19
pin K2	pin 7

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27109.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 857

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.19
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers and remove safety tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

858. Flaperon PCU Actuation (Right Inboard) Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10310, 27-10490, 27-10493.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the right inboard flaperon power control unit (PCU), M27210. To adjust it, do this task: Flaperon Adjustment (Rigging), AMM TASK 27-11-00-820-803.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

EFFECTIVITY
ARO ALL

27-11 TASKS 857-858

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.20
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right inboard flaperon PCU, M27210. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the feedback wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- (b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27210 from the right inboard flaperon PCU, M27210.
- (d) Do a wiring check between these pins of connector DM27122AA at the E1-1 shelf and connector DM27210 at the right inboard flaperon PCU, M27210 (WDM 27-11-18):

DM27122AA	DM27210
pin F1	pin 5
pin G1	pin 15
pin K1	pin 19
pin K2	pin 7

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27210.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 858

D633W103-ARO

Page 298.21
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

— END OF TASK —

859. Flaperon PCU Actuation (Right Outboard) Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10311, 27-10491, 27-10494.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the right outboard flaperon power control unit (PCU), M27209. To adjust it, do this task: Flaperon Adjustment (Rigging), AMM TASK 27-11-00-820-803.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

EFFECTIVITY
ARO ALL

27-11 TASKS 858-859

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.22
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right outboard flaperon PCU, M27209. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the feedback wiring:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27209 from the right outboard flaperon PCU, M27209.
- (d) Do a wiring check between these pins of connector DM27321AA at the E2-5 shelf and connector DM27209 at the right outboard flaperon PCU, M27209 (WDM 27-11-17):

DM27321AA	DM27209
pin F1	pin 5
pin G1	pin 15
pin K1	pin 19
pin K2	pin 7

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27209.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 859

D633W103-ARO

Page 298.23
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

860. Left Inboard Aileron PCU Bypass SOV Command Problems - Fault Isolation.

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10208.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Do a check for 28 VDC from terminal QB53 of terminal block TB2501 at the E2-5 shelf to structure ground (WDM 27-11-12).
 - (b) If there is not 28 VDC at terminal QB53 of terminal block TB2501, then do these steps:
 - 1) Repair the wiring.
 - 2) Remove the center power supply assembly (PSA-C), M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 3) Do a wiring check between these pins of terminal block TB2501 at the E2-5 shelf and the connector DM24301AD at the E2-6 shelf (WDM 27-11-12):

TB2501	DM24301AD
term QB53	pin 10

- 4) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-11 TASKS 859-860

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.24
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) Repair the wiring.
 - b) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
- 5) If you do not find a problem with the wiring, then continue.
- 6) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (c) If there is 28 VDC at terminal QB53 of terminal block TB2501, then continue.
- (2) Do this check of the bypass solenoid-operated valve (SOV) control wiring:
- (a) Open these circuit breakers and install DO-NOT-OPERATE tags on the center power supply assembly (PSA-C), M24301:
 - 1) A1, ACE PWR
 - 2) A3, AIL PCU
 - 3) A5, FLPRN PCU
 - 4) A7, ELEV PCU
 - 5) A9, RUD PCU
 - 6) B2, STAB TRIM
 - 7) B4, AUTO-SPDBRK (L, R)
 - 8) B6, ELEV FEEL (C)
 - 9) B8, RUD TRIM ACTR (L)
 - (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (c) Disconnect connector DM27108A from the left inboard aileron power control unit (LIB PCU).
 - (d) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27108A at the LIB PCU (WDM 27-11-12):

DM27321AA	DM27108A
pin A13	pin 17

- (e) Do a wiring check between these pins of terminal block TB2501 and connector DM27108A at the PCU (WDM 27-11-12):

TB2501	DM27108A
term QB53	pin 16

EFFECTIVITY
ARO ALL

27-11 TASK 860

D633W103-ARO

Page 298.25
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (f) Do a wiring check between pin A7 of connector DM27321AB and structure ground (WDM 27-11-12).
- (g) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27108A to the PCU.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-C, M24301:
 - a) A1, ACE PWR
 - b) A3, AIL PCU
 - c) A5, FLPRN PCU
 - d) A7, ELEV PCU
 - e) A9, RUD PCU
 - f) B2, STAB TRIM
 - g) B4, AUTO-SPDBRK (L, R)
 - h) B6, ELEV FEEL (C)
 - i) B8, RUD TRIM ACTR (L)
 - 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (h) If you do not find a problem with the wiring, then continue.
- (3) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-11 TASK 860

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.26
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the left inboard aileron PCU, M27108. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

861. Right Inboard Aileron PCU Bypass SOV Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10210.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Do a check for 28 VDC from terminal QB1 of terminal block TB5201 at the E5-2 shelf to structure ground (WDM 27-11-14).
 - (b) If there is not 28 VDC at terminal QB1 of terminal block TB5201, then do these steps:
 - 1) Repair the wiring.
 - 2) Remove the right power supply assembly (PSA-R), M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 3) Do a wiring check between these pins of terminal block TB5201 at the E5-2 shelf and the connector DM24201AD at the E5-1 shelf (WDM 27-11-14):

TB5201	DM24201AD
term QB1	pin 10

- 4) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASKS 860-861

D633W103-ARO

Page 298.27
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- d) If the maintenance message does not show on the ground test display, you corrected the fault.
- 5) If you do not find a problem with the wiring, then continue.
- 6) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (c) If there is 28 VDC at terminal QB1 of terminal block TB5201, then continue.
- (2) Do this check of the bypass solenoid-operated valve (SOV) control wiring:
 - (a) Open these circuit breakers and install DO-NOT-OPERATE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27208A from the right inboard aileron power control unit (RIB PCU).
- (d) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27208A at the RIB PCU (WDM 27-11-14):

DM27221AA	DM27208A
pin A13	pin 17

- (e) Do a wiring check between these pins of terminal block TB5201 and connector DM27208A at the PCU (WDM 27-11-14):

TB5201	DM27208A
term QB1	pin 16

- (f) Do a wiring check between pin A7 of connector DM27221AB and structure ground (WDM 27-11-14).
- (g) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27208A to the PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 861

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.28
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (h) If you do not find a problem with the wiring, then continue.
- (3) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the right inboard aileron PCU, M27208. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASK 861

D633W103-ARO

Page 298.29
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

862. Right Outboard Aileron PCU Bypass SOV Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10211.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Do a check for 28 VDC from terminal QB57 of terminal block TB1501 at the E1-5 shelf to structure ground (WDM 27-11-13).
 - (b) If there is not 28 VDC at terminal QB57 of terminal block TB1501, then do these steps:
 - 1) Repair the wiring.
 - 2) Remove the left power supply assembly (PSA-L), M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 3) Do a wiring check between these pins of terminal block TB1501 at the E1-5 shelf and the connector DM24101AD at the E1-6 shelf (WDM 27-11-13):

TB1501	DM24101AD
term QB57	pin 10
- 4) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
- 5) If you do not find a problem with the wiring, then continue.
- 6) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASKS 861-862

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.30
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- b) If the maintenance message does not show on the ground test display, you corrected the fault.
- c) If the maintenance message shows on the ground test display, then continue.
- (c) If there is 28 VDC at terminal QB57 of terminal block TB1501, then continue.
- (2) Do this check of the bypass solenoid-operated valve (SOV) control wiring:
 - (a) Open these circuit breakers and install safety tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- b) Remove the left-1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- c) Disconnect connector DM27207A from the right outboard aileron power control unit (ROB PCU).
- d) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27207A at the ROB PCU (WDM 27-11-13):

DM27121AA	DM27207A
pin A13	pin 17

- e) Do a wiring check between these pins of terminal block TB1501 and connector DM27207A at the PCU (WDM 27-11-13):

TB1501	DM27207A
term QB57	pin 16

- f) Do a wiring check between pin A7 of connector DM27121AB and structure ground (WDM 27-11-13).
- g) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27207A to the PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers and remove safety tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR

EFFECTIVITY
ARO ALL

27-11 TASK 862

D633W103-ARO

Page 298.31
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (h) If you do not find a problem with the wiring, then continue.
- (3) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the right outboard aileron PCU, M27207. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASK 862

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.32
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

863. Left Inboard Flaperon PCU Delta Pressure Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11310.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) delta pressure feedback wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf.
- (c) Disconnect connector DM27110 from the left inboard (LIB) flaperon PCU.
- (d) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27110 at the LIB PCU (WDM 27-11-16):

DM27221AA	DM27110
pin F1	pin 5
pin G1	pin 15

- 1) Check for shorts to ground for pins 5 and 15.
- 2) Check for shorts between pins 5 and 15.
- 3) Check for shorts between pin 5 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.

EFFECTIVITY
ARO ALL

27-11 TASKS 862-863

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.33
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Check for shorts between pin 15 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27110 to the PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- 7) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-11 TASK 863

D633W103-ARO

Page 298.34
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left inboard flaperon PCU, M27110. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

864. Right Inboard Flaperon PCU Delta Pressure Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11312.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) delta pressure feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.
- (c) Disconnect connector DM27210 from the right inboard (RIB) flaperon PCU.
- (d) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27210 at the RIB PCU (WDM 27-11-18):

EFFECTIVITY
ARO ALL

27-11 TASKS 863-864

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.35
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27122AA

pin F1 pin 5
pin G1 pin 15

DM27210

- 1) Check for shorts to ground for pins 5 and 15.
 - 2) Check for shorts between pins 5 and 15.
 - 3) Check for shorts between pin 5 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
 - 4) Check for shorts between pin 15 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27210 to the PCU.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 7) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27122. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-11 TASK 864

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.36
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard flaperon PCU, M27210. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

865. Right Outboard Flaperon PCU Delta Pressure Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11313.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) delta pressure feedback wiring:

EFFECTIVITY
ARO ALL

27-11 TASKS 864-865

D633W103-ARO

Page 298.37
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
(c) Disconnect connector DM27209 from the right outboard (ROB) flap PCU.
(d) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27209 at the ROB PCU (WDM 27-11-17):

DM27321AA	DM27209
pin F1	pin 5
pin G1	pin 15

- 1) Check for shorts to ground for pins 5 and 15.
 - 2) Check for shorts between pins 5 and 15.
 - 3) Check for shorts between pin 5 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
 - 4) Check for shorts between pin 15 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27209 to the PCU.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flap PCU Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-11 TASK 865

D633W103-ARO

Page 298.38
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 7) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right outboard flaperon PCU, M27209. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

— END OF TASK —

866. Right Aileron PCU Ram Transducer Signal Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11205.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.

NOTE: If the EICAS status message FLIGHT CONTROL SYS clears during the test steps, ignore the message and continue with the task.

EFFECTIVITY
ARO ALL

27-11 TASKS 865-866

D633W103-ARO

Page 298.39
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
- (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do a wiring check for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

————— **END OF TASK** —————

867. Right Flaperon PCU Ram Transducer Signal Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11305.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.

NOTE: If the EICAS status message FLIGHT CONTROL SYS clears during the test steps, ignore the message and continue with the task.

- (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
- (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do a wiring check for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-11 TASKS 866-867

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.40
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

868. Left Inboard Aileron PCU Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11210.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) transducer excitation and ground wiring:
 - (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the center power supply assembly (PSA-C), M24301:
 - 1) D8, BAT INTLK
 - (b) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (c) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (d) Disconnect connector DM27108A from the left inboard (LIB) aileron PCU.
 - (e) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27108A at the LIB PCU (WDM 27-11-12):

DM27321AA	DM27108A
pin D12	pin 18
pin E14	pin 12
pin E15	pin 13

- 1) Check for shorts to ground for pins 12, 13 and 18.
 - 2) Check for shorts between pins 12, 13 and 18.
 - 3) Check for shorts between pin 12 and pins 3, 7, 8, 9, 11, 16, 17 and 19.
 - 4) Check for shorts between pin 13 and pins 3, 7, 8, 9, 11, 16, 17 and 19.
 - 5) Check for shorts between pin 18 and pins 3, 7, 8, 9, 11, 16, 17 and 19.
- (f) Disconnect connector DM27107B.
 - 1) Check for shorts between pin 12 and DM27107B pins 1 and 2.
 - 2) Check for shorts between pin 13 and DM27107B pins 1 and 2
 - 3) Check for shorts between pin 18 and DM27107B pins 1 and 2

EFFECTIVITY
ARO ALL

27-11 TASK 868

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.41
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (g) Do a wiring check between these pins of connector DM27321AB for the ACE-C and connector DM24301AD at the PSA-C (WDM 27-11-12):

DM27321AB

pin A7

DM24301AD

pin 4

- (h) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27108A to the PCU.
 - 3) Re-connect connector DM27107B.
 - 4) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 5) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 6) Remove the DO-NOT-CLOSE tag and this circuit breaker on the PSA-C, M24301:
 - a) D8, BAT INTLK
 - 7) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (i) If you do not find a problem with the wiring, then continue.
- (j) Re-connect connector DM27108A to the PCU.
- (k) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Remove the DO-NOT-CLOSE tag and this circuit breaker on the PSA-C, M24301:
- 1) D8, BAT INTLK
- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-11 TASK 868

D633W103-ARO

Page 298.42
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left inboard aileron PCU, M27108. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

869. Right Inboard Aileron PCU Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11212.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) transducer excitation and ground wiring:
 - (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the right power supply assembly (PSA-R), M24201:
 - 1) D8, BAT INTLK
 - (b) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (c) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (d) Disconnect connector DM27208A from the right inboard (RIB) aileron PCU.
 - (e) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27208A at the RIB PCU (WDM 27-11-14):

EFFECTIVITY
ARO ALL

27-11 TASKS 868-869

D633W103-ARO

Page 298.43
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27221AA

pin D12 pin 18
pin E14 pin 12
pin E15 pin 13

DM27208A

- 1) Check for shorts to ground for pins 12, 13 and 18.
 - 2) Check for shorts between pins 12, 13 and 18.
 - 3) Check for shorts between pin 12 and pins 3, 7, 8, 9, 11, 16, 17 and 19.
 - 4) Check for shorts between pin 13 and pins 3, 7, 8, 9, 11, 16, 17 and 19.
 - 5) Check for shorts between pin 18 and pins 3, 7, 8, 9, 11, 16, 17 and 19.
- (f) Disconnect connector DM27207B.
- 1) Check for shorts between pin 12 and DM27207B pins 1 and 2.
 - 2) Check for shorts between pin 13 and DM27207B pins 1 and 2
 - 3) Check for shorts between pin 18 and DM27207B pins 1 and 2
- (g) Do a wiring check between these pins of connector DM27221AB for the ACE-R and connector DM24201AD at the PSA-R (WDM 27-11-14):

DM27221AB

pin A7 pin 4

DM24201AD

- (h) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27208A to the PCU.
 - 3) Re-connect connector DM27207B.
 - 4) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 5) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 6) Remove the DO-NOT-CLOSE tag and this circuit breaker on the PSA-R, M24201:
 - a) D8, BAT INTLK
 - 7) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (i) If you do not find a problem with the wiring, then continue.
- (j) Re-connect connector DM27208A to the PCU.
- (k) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Remove the DO-NOT-CLOSE tag and this circuit breaker on the PSA-R, M24201:
- 1) D8, BAT INTLK

EFFECTIVITY
ARO ALL

27-11 TASK 869

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.44
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right inboard aileron PCU, M27208. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

870. Right Outboard Aileron PCU Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11213.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

EFFECTIVITY
ARO ALL

27-11 TASKS 869-870

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.45
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) transducer excitation and ground wiring:
 - (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the left power supply assembly (PSA-L), M24101:
 - 1) D8, BAT INTLK
 - (b) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (c) Remove the left-1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (d) Disconnect connector DM27207A from the right outboard (ROB) aileron PCU.
 - (e) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27207A at the ROB PCU (WDM 27-11-13):

DM27121AA

pin D12	.....	pin 18
pin E14	.....	pin 12
pin E15	.....	pin 13

DM27207A

- 1) Check for shorts to ground for pins 12, 13 and 18.
 - 2) Check for shorts between pins 12, 13 and 18.
 - 3) Check for shorts between pin 12 and pins 3, 7, 8, 9, 11, 16, 17 and 19.
 - 4) Check for shorts between pin 13 and pins 3, 7, 8, 9, 11, 16, 17 and 19.
 - 5) Check for shorts between pin 18 and pins 3, 7, 8, 9, 11, 16, 17 and 19.
- (f) Disconnect connector DM27208B.
 - 1) Check for shorts between pin 12 and DM27208B pins 1 and 2.
 - 2) Check for shorts between pin 13 and DM27208B pins 1 and 2
 - 3) Check for shorts between pin 18 and DM27208B pins 1 and 2
 - (g) Do a wiring check between these pins of connector DM27121AB for the ACE-L1 and connector DM24101AD at the PSA-L (WDM 27-11-13):

DM27121AB

pin A7		pin 4

DM24101AD

- (h) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27207A to the PCU.
 - 3) Re-connect connector DM27208B.
 - 4) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 5) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 6) Remove the DO-NOT-CLOSE tag and this circuit breaker on the PSA-L, M24101:
 - a) D8, BAT INTLK

EFFECTIVITY
ARO ALL

27-11 TASK 870

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.46
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 7) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (i) If you do not find a problem with the wiring, then continue.
- (j) Re-connect connector DM27207A to the PCU.
- (k) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the DO-NOT-CLOSE tag and this circuit breaker on the PSA-L, M24101:
 - 1) D8, BAT INTLK
 - (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right outboard aileron PCU, M27207. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

871. Left Inboard Flaperon PCU Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11314.

EFFECTIVITY
ARO ALL

27-11 TASKS 870-871

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.47
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) transducer excitation and ground wiring:
 - (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the left power supply assembly (PSA-L), M24101.
 - 1) D8, BAT INTLK
 - (b) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (c) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (d) Disconnect connector DM27110 from the left inboard (LIB) flaperon PCU.
 - (e) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27110 at the LIB PCU (WDM 27-11-16):

DM27221AA	DM27110
pin J1	pin 18
pin K3	pin 12
pin K4	pin 13

- 1) Check for shorts to ground for pins 12, 13 and 18.
 - 2) Check for shorts between pins 12, 13 and 18.
 - 3) Check for shorts between pin 12 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
 - 4) Check for shorts between pin 13 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
 - 5) Check for shorts between pin 18 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
- (f) Do a wiring check between these pins of connector DM27221AB for the ACE-R and connector DM24201AD at the PSA-R (WDM 27-11-16):

DM27221AB	DM24201AD
pin B6	pin 16

- (g) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27110 to the PCU.

EFFECTIVITY
ARO ALL

27-11 TASK 871

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.48
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 4) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-R, M24201:
 - a) D8, BAT INTLK
- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
- 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- 8) If the maintenance message shows on the ground test display, then continue.
- (h) If you do not find a problem with the wiring, then continue.
 - (i) Re-connect connector DM27110 to the PCU.
 - (j) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-R, M24201:
 - 1) D8, BAT INTLK
 - (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left inboard flaperon PCU, M27110. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.

EFFECTIVITY
ARO ALL

27-11 TASK 871

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.49
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

872. Right Inboard Flaperon PCU Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11316.

B. Description

- (1) The Right INBD Flaperon Power Control Unit has multiple Transducer faults.

C. Possible Causes

- (1) Wiring
- (2) ACE - Left 2, M27122
- (3) Right Inboard (RIB) Flaperon PCU, M27210
- (4) FDR Wheel Force Transducer, M27014
- (5) Power Control Unit

D. Related Data

- (1) WDM 27-11-18
- (2) WDM 27-11-20

E. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - (a) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the Ground Test Display, then do the check that follows:
 - 1) Select Page 2 of the FLIGHT CONTROLS Maintenance Page.
 - 2) Watch the Right Inboard Flaperon position data as you slowly rotate the captain's control wheel fully clockwise.
 - 3) Watch the Right Inboard Flaperon position data as you slowly rotate the captain's control wheel fully counter-clockwise.
 - 4) If an Amber "X" showed adjacent to the Right Inboard Flaperon position data at any time while the captain's control wheel was rotated, then do the Fault Isolation Procedure below.
 - 5) If an Amber "X" did not show adjacent to the Right Inboard Flaperon position data at any time while the captain's control wheel was rotated, then there was an intermittent problem.
 - a) Monitor the airplane to see if the problem occurs on the subsequent flights.
 - b) If the problem occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

EFFECTIVITY
ARO ALL

27-11 TASKS 871-872

D633W103-ARO

Page 298.50
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

F. Fault Isolation Procedure

- (1) Do this check of the FDR WHEEL FORCE XDCR, M27014.
 - (a) Disconnect FDR Wheel Force XDCR, M27014 at connector DM27000.
 - (b) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - 1) If the maintenance message does not show on the Ground Test Display, replace the FDR Wheel Force XDCR, M27014. These are the tasks:
 - Wheel Force Transducer - Removal, AMM TASK 27-11-08-000-801
 - Wheel Force Transducer - Installation, AMM TASK 27-11-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the maintenance message still shows on the Ground Test Display, then reconnect DM27000 and continue.

- (2) Do this check of the Power Control Unit (PCU) Transducer Excitation and Ground Wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Disconnect connector D11013P from the Left Power Management Panel, P110 (WDM 27-11-18).
- (c) Remove the Left-2 ACE, M27122. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Disconnect connector DM27210 from the Right Inboard (RIB) Flaperon PCU (WDM 27-11-18).
- (e) Disconnect connector DM27000 from the FDR Wheel Force XDCR (WDM 27-11-20).
- (f) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27210 at the RIB PCU (WDM 27-11-18):

DM27122AA	DM27210
pin J1	pin 18
pin K3	pin 12
pin K4	pin 13

- 1) Make sure that there is no short to ground for pins 12, 13 and 18.
- 2) Make sure there is not a short circuit between pins 12, 13 and 18.
- 3) Make sure there is not a short circuit between pin 12 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.

EFFECTIVITY
ARO ALL

27-11 TASK 872

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.51
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Make sure there is not a short circuit between pin 13 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
- 5) Make sure there is not a short circuit between pin 18 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
- (g) Do a wiring check between these pins of connector DM27122AB for the ACE-L2 and connector D11013P at the Left Power Management Panel, P110 (WDM 27-11-18):

DM27122AB	D11013P
pin B6	pin 10

- (h) Do a wiring check between these pins of connector DM27122AC for the ACE-L2 and connector DM27000 at the FDR Wheel Force XDCR (WDM 27-11-20):

DM27122AC	DM27000
pin B1	pin 2
pin B2	pin 1

- (i) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27210 to the PCU.
 - 3) Re-connect connector D11013P to the Left Power Management Panel, P110.
 - 4) Re-connect connector DM27000 to the FDR Wheel Force XDCR.
 - 5) Re-install the Left-2 ACE, M27122. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 6) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 7) Do the Repair Confirmation at the end of this task.
- (j) If you do not find a problem with the wiring, then continue.
- (k) Re-connect connector DM27210 to the PCU.
- (l) Re-connect connector D11013P to the Left Power Management Panel, P110.
- (m) Re-connect connector DM27000 to the FDR Wheel Force XDCR.
- (3) Install a new ACE-L2, M27122. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 872

D633W103-ARO

Page 298.52
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do the Repair Confirmation at the end of this task.
- (4) Do this task for obvious electrical problems in the applicable PCU Wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For Flight Controls PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

- (a) If you find a problem, replace the applicable PCU.
- (b) If you find no problems with the PCU Wiring, then do this task: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
- 1) If you find a problem, repair or replace the applicable wiring.
- 2) Do the Repair Confirmation at the end of this task.
- (5) Replace the Right Inboard Flaperon PCU, M27210. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
- (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
- (b) If the maintenance message still shows on the Ground Test Display, continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

873. Right Outboard Flaperon PCU Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11317.

EFFECTIVITY
ARO ALL

27-11 TASKS 872-873

D633W103-ARO

Page 298.53
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the power control unit (PCU) transducer excitation and ground wiring:
 - (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the center power supply assembly (PSA-C), M24301.
 - 1) D8, BAT INTLK
 - (b) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (c) Remove the center Actuator Control Electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (d) Disconnect connector DM27209 from the right outboard (ROB) flaperon PCU.
 - (e) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27209 at the ROB PCU (WDM 27-11-17):

DM27321AA	DM27209
pin K3	pin 12
pin K4	pin 13
pin J1	pin 18

- 1) Check for shorts to ground for pins 12, 13 and 18.
- 2) Check for shorts between pins 12, 13 and 18.
- 3) Check for shorts between pin 12 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
- 4) Check for shorts between pin 13 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
- 5) Check for shorts between pin 18 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
- (f) Do a wiring check between these pins of connector DM27321AB for the ACE-C and connector DM24301AD at the PSA-C (WDM 27-11-17):

DM27321AB	DM24301AD
pin B6	pin 16

- (g) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27209 to the PCU.

EFFECTIVITY
ARO ALL

27-11 TASK 873

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.54
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 4) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-C, M24301:
 - a) D8, BAT INTLK
- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
- 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- 8) If the maintenance message shows on the ground test display, then continue.
- (h) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-C, M24301:
 - 1) D8, BAT INTLK
 - (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right outboard flaperon PCU, M27209. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-11 TASK 873

D633W103-ARO

Page 298.55
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

874. Left Inboard Aileron PCU Ram Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16033.

B. Initial Evaluation

NOTE: This message can only occur when you do the Left Aileron Position ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) For the left inboard aileron power control unit (PCU), do this task: Aileron Adjustment (Rigging), AMM TASK 27-11-00-820-802.
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Aileron Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
- (c) Disconnect connector DM27108A from the left inboard aileron power control unit (LIB PCU).
- (d) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27108A at the LIB PCU (WDM 27-11-12):

DM27321AA	DM27108A
pin E12	pin 19
pin E13	pin 7

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-connect connector DM27108A to the PCU.
- 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 874

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.56
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27108A to the PCU.
- (3) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Aileron Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)

EFFECTIVITY
ARO ALL

27-11 TASK 874

D633W103-ARO

Page 298.57
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left inboard aileron PCU, M27108. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Aileron Actuator Confidence.
- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Aileron Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

875. Right Inboard Aileron PCU Ram Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16035.

B. Initial Evaluation

NOTE: This message can only occur when you do the Right Aileron Position ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) For the right inboard aileron power control unit (PCU), do this task: Aileron Adjustment (Rigging), AMM TASK 27-11-00-820-802.
 - (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Aileron Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf.

EFFECTIVITY
ARO ALL

27-11 TASKS 874-875

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.58
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Disconnect connector DM27208A from the right inboard aileron power control unit (RIB PCU).
- (d) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27208A at the RIB PCU (WDM 27-11-14):

DM27221AA	DM27208A
pin E12	pin 19
pin E13	pin 7

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27208A to the PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27208A to the PCU.
- (3) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Aileron Position.

EFFECTIVITY
ARO ALL

27-11 TASK 875

D633W103-ARO

Page 298.59
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard aileron PCU, M27208. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Aileron Actuator Confidence.
 - (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Aileron Position.
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

876. Right Outboard Aileron PCU Ram Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16036.

B. Initial Evaluation

NOTE: This message can only occur when you do the Right Aileron Position ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) For the right outboard aileron power control unit (PCU), do this task: Aileron Adjustment (Rigging), AMM TASK 27-11-00-820-802.
 - (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Aileron Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-11 TASKS 875-876

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.60
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf.
- (c) Disconnect connector DM27207A from the right outboard aileron power control unit (ROB PCU).
- (d) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27207A at the ROB PCU (WDM 27-11-13):

DM27121AA	DM27207A
pin E12	pin 19
pin E13	pin 7

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27207A to the PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers and remove safety tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27207A to the PCU.

EFFECTIVITY
ARO ALL

27-11 TASK 876

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.61
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (3) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Aileron Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right outboard aileron PCU, M27207. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Aileron Actuator Confidence.
- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Aileron Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-11 TASK 876

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.62
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

877. Left Inboard Flaperon PCU Ram Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16037.

B. Initial Evaluation

NOTE: This message can only occur when you do the Left Flaperon Position ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) For the left inboard flaperon power control unit (PCU), do this task: Flaperon Adjustment (Rigging), AMM TASK 27-11-00-820-803.
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Flaperon Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201 on the E5-1 shelf::

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27110 from the inboard power control unit (PCU) on the left flaperon.
- (d) Do a wiring check between these pins of connector DM27221AA (for ACE-R) and connector DM27110 (at the flaperon PCU) (WDM 27-11-16):

DM27221AA	DM27110
pin K2	pin 7
pin K1	pin 19

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-connect connector DM27110 to the inboard PCU on the left flaperon.
- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 877

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.63
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- f) If you do not find a problem with the wiring, then continue.
- g) Re-connect connector DM27110 to the inboard PCU on the left flaperon.
- (3) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

- (a) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Flaperon Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-11 TASK 877

D633W103-ARO

Page 298.64
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left inboard flaperon PCU, M27110. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Flaperon Actuator Confidence.
- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Left Flaperon Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

878. Right Inboard Flaperon PCU Ram Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16039.

B. Initial Evaluation

NOTE: This message can only occur when you do the Right Flaperon Position ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) For the right inboard flaperon power control unit (PCU), do this task: Flaperon Adjustment (Rigging), AMM TASK 27-11-00-820-803.
 - (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Flaperon Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27210 from the inboard power control unit (PCU) on the right flaperon.

EFFECTIVITY
ARO ALL

27-11 TASKS 877-878

D633W103-ARO

Page 298.65
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins of connector DM27122AA (for ACE-L2) and connector DM27210 (at the flaperon PCU) (WDM 27-11-18):

DM27122AA	DM27210
pin K2	pin 7
pin K1	pin 19

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27210 to the inboard PCU on the right flaperon.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27210 to the inboard PCU on the right flaperon.
- (3) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Flaperon Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-11 TASK 878

D633W103-ARO

Page 298.66
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard flaperon PCU, M27210. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Flaperon Actuator Confidence.
 - (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Flaperon Position.
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

879. Right Outboard Flaperon PCU Ram Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16040.

B. Initial Evaluation

NOTE: This message can only occur when you do the Right Flaperon Position ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) For the right outboard flaperon power control unit (PCU), do this task: Flaperon Adjustment (Rigging), AMM TASK 27-11-00-820-803.
 - (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Flaperon Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-11 TASKS 878-879

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.67
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301 on the E2-6 shelf::

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27209 from the outboard power control unit (PCU) on the right flaperon.
- (d) Do a wiring check between these pins of connector DM27321AA (for ACE-C) and connector DM27209 (at the flaperon PCU) (WDM 27-11-17):

DM27321AA	DM27209
pin K2	pin 7
pin K1	pin 19

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27209 to the outboard PCU on the right flaperon.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27209 to the outboard PCU on the right flaperon.
- (3) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 879

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL

- (a) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Flaperon Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right outboard flaperon PCU, M27209. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Flaperon Actuator Confidence.
- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Right Flaperon Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

880. Right Inboard Aileron PCU Blocking Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10206.

EFFECTIVITY
ARO ALL

27-11 TASKS 879-880

D633W103-ARO

Page 298.69
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Do a check for 28 VDC from terminal QB57 of terminal block TB1501 at the E1-5 shelf to structure ground (WDM 27-11-13).
 - (b) If there is not 28 VDC at terminal QB57 of terminal block TB1501, then do these steps:
 - 1) Remove the left power supply assembly (PSA-L), M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of terminal block TB1501 at the E1-5 shelf and the connector DM24101AD at the E1-6 shelf (WDM 27-11-13):

TB1501	DM24101AD
term QB57	pin 10
 - (3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (4) If you do not find a problem with the wiring, then continue.
 - (5) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the control wiring for the blocking solenoid-operated valve (SOV):

EFFECTIVITY
ARO ALL

27-11 TASK 880

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.70
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf.
- (c) Disconnect connector DM27208B from the right inboard aileron power control unit (RIB PCU).
- (d) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27208B at the RIB PCU (WDM 27-11-13):

DM27121AA	DM27208B
pin A15	pin 2

- (e) Do a wiring check between these pins of terminal block TB1501 and connector DM27208B at the PCU (WDM 27-11-13):

TB1501	DM27208B
term QB57	pin 1

- (f) Do a check for continuity between pin A7 of connector DM27121AB and structure ground (WDM 27-11-13).
- (g) If there is no continuity, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27208B to the PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

EFFECTIVITY
ARO ALL

27-11 TASK 880

D633W103-ARO

Page 298.71
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (h) If there is a continuity, then continue.
- (3) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect connector DM27208B to the PCU.
 - (b) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard PCU recommended by the previous step. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASK 880

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.72
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

881. Right Outboard Aileron PCU Blocking Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10207.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
- (a) Do a check for 28 VDC from terminal QB1 of terminal block TB5201 at the E5-2 shelf to structure ground (WDM 27-11-14).
- (b) If there is not 28 VDC at terminal QB1 of terminal block TB5201, then do these steps:
- 1) Remove the right power supply assembly (PSA-R), M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of terminal block TB5201 at the E5-2 shelf and the connector DM24201AD at the E5-1 shelf (WDM 27-11-14):
- | | |
|--------------------|------------------|
| TB5201 | DM24201AD |
| term QB1 | pin 10 |
- (3) If you find a problem with the wiring, then do these steps:
- a) Repair the wiring.
 - b) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (4) If you do not find a problem with the wiring, then continue.
- (5) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-11 TASKS 880-881

D633W103-ARO

Page 298.73
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) If the maintenance message shows on the ground test display, then continue.
- (c) If there is 28 VDC at terminal QB1 of terminal block TB5201, then continue.
- (2) Do this check of the control wiring for the blocking solenoid-operated valve (SOV):
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf.
- (c) Disconnect connector DM27207B from the right outboard aileron power control unit (ROB PCU).
- (d) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27207B at the ROB PCU (WDM 27-11-14):

DM27221AA	DM27207B
pin A15	pin 2

- (e) Do a wiring check between these pins of terminal block TB5201 and connector DM27207B at the PCU (WDM 27-11-14):

TB5201	DM27207B
term QB1	pin 1

- (f) Do a check for continuity between pin A7 of connector DM27221AB and structure ground (WDM 27-11-14).
- (g) If there is no continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27207B to the PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU

EFFECTIVITY
ARO ALL

27-11 TASK 881

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.74
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (h) If there is a continuity, then continue.
- (3) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect connector DM27207B to the PCU.
 - (b) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right outboard PCU, M27207. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801

EFFECTIVITY
ARO ALL

27-11 TASK 881

D633W103-ARO

Page 298.75
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

882. Left Inboard Flaperon PCU Bypass Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10304.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
 - (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the right power supply assembly (PSA-R), M24201

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- (b) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (c) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector DM27221AB for the ACE-R and connector DM24201AD at the PSA-R (WDM 27-11-16):

DM27221AB	DM24201AD
pin B6	pin 16

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASKS 881-882

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Do this check of the wiring:
 - (a) Disconnect connector DM27110 from the left inboard (LIB) flaperon PCU.
 - (b) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27110 at the LIB PCU (WDM 27-11-16):

DM27221AA	DM27110
pin F2	pin 17
 - (c) Do a wiring check between these pins of connector DM24201AD for the PSA-R and connector DM27110 at the LIB PCU (WDM 27-11-16):

DM24201AD	DM27110
pin 22	pin 16
 - (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27110 to the PCU.
 - 3) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201			
<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK
 - 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Confidence.
 - 7) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If you do not find a problem with the wiring, then continue.
- (3) Install a new ACE-R, M27221 (AMM TASK 27-02-02-400-803).
 - (a) Re-connect connector DM27110 to the PCU.

EFFECTIVITY
ARO ALL

27-11 TASK 882

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.77
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (c) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (f) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the PSA-R, M24201 These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the left inboard flaperon PCU, M27110. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

883. Right Outboard Flaperon PCU Bypass Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10307.

EFFECTIVITY
ARO ALL

27-11 TASKS 882-883

D633W103-ARO

Page 298.78
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
 - (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- (b) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (c) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector DM27321AB for the ACE-C and connector DM24301AD at the PSA-C (WDM 27-11-17):

DM27321AB	DM24301AD
pin B6	pin 16

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Do this check of the wiring:

EFFECTIVITY
ARO ALL

27-11 TASK 883

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.79
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Disconnect connector DM27209 from the right outboard (ROB) flaperon PCU.
- (b) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27209 at the ROB PCU (WDM 27-11-17):

DM27321AA	DM27209
pin F2	pin 17

- (c) Do a wiring check between these pins of connector DM24301AD for the PSA-C and connector DM27209 at the ROB PCU (WDM 27-11-17):

DM24301AD	DM27209
pin 22	pin 16

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27209 to the PCU.
 - 3) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (3) Install a new ACE-C, M27321. To install it, (AMM TASK 27-02-02-400-803).
- (a) Re-connect connector DM27209 to the PCU.
 - (b) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (c) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - (e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (f) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the PSA-C, M24301. These are the tasks:

EFFECTIVITY
ARO ALL

27-11 TASK 883

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.80
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
- Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the right outboard flaperon PCU, M27209. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

884. Right-3 Wheel Position Transducer Signal Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12012.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do the control wheel adjustment procedure. To do this check, do this task: Control Wheel and Cable Adjustment (Rigging), AMM TASK 27-11-00-700-802.
 - (a) If you find a problem with the adjustment, then do these steps:

EFFECTIVITY
ARO ALL

27-11 TASKS 883-884

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.81
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Adjust the transducer. To adjust it, do this task: Wheel Position Transducer (LVDT) Adjustment, AMM TASK 27-11-00-820-801.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (b) If you do not find a problem with the adjustment, then continue.
- (2) Do this check of the wheel position transducer feedback wiring:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27233 from the disconnect panel on the right end of wheel control rods.
- (d) Do a wiring check between these pins of connector DM27221AC for the ACE-R and connector DM27233 (WDM 27-11-14):

DM27221AC	DM27233
pin G15	pin 5
pin F15	pin 6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27233 to the disconnect panel.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU

EFFECTIVITY
ARO ALL

27-11 TASK 884

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.82
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- 7) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27233 to the disconnect panel.
- (3) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right-3 wheel position transducer, M27233. These are the tasks:
 - Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

885. Left Inboard Aileron PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15021.

EFFECTIVITY
ARO ALL

27-11 TASKS 884-885

D633W103-ARO

Page 298.83
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Close this circuit breaker:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	CBA3-C	AIL PCU

- (a) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:

- (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- (c) Remove PSA-C, M24301, from E2-6. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (d) Disconnect connector DM27108A from the left inboard aileron power control unit (LIB PCU), M27108.
 - (e) Disconnect connector DM27107B from the left outboard aileron power control unit (LOB PCU), M27107.
 - (f) Do a wiring check between these pins of connector DM27108A for the LIB PCU and connector DM24301AD at the PSA-C (WDM 27-11-12):

DM27108A	DM24301AD
pin 16	pin 10

- (g) Do a wiring check between these pins of connector DM27107B for the LOB PCU and connector DM24301AD at the PSA-C (WDM 27-11-12):

DM27107B	DM24301AD
pin 1	pin 10

- (h) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27107B to the LOB PCU.

EFFECTIVITY
ARO ALL

27-11 TASK 885

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.84
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-connect connector DM27108A to the LIB PCU.
- 4) Re-connect connector DM24301AD to the PSA-C.
- 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (i) If you do not find a problem with the wiring, then continue.
- (2) Replace the PSA-C. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left inboard aileron PCU, M27108. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the left outboard aileron PCU, M27107. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-11 TASK 885

D633W103-ARO

Page 298.85
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

886. Aileron PCU (Left Inboard) Actuation Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10212.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the fault isolation procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring for the ram transducer on the aileron PCU:
 - (a) Remove the center actuator control electronics (ACE-C) from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Disconnect connector DM27108A from the left inboard aileron PCU, M27108.
 - (c) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27108A at the LIB PCU (WDM 27-11-12):

NOTE: Look for a short circuit between these two wires.

DM27321AA	DM27108A
pin E12	pin 19
pin E13	pin 7

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ACE-C. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-connect connector DM27108A to the aileron PCU.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - 5) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Replace the left inboard aileron power control unit (PCU), M27108. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - (a) Re-install the ACE-C. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASK 886

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.86
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

887. Aileron PCU (Left Outboard) Actuation Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10213.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the fault isolation procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring for the ram transducer on the aileron PCU:
- (a) Remove the left 2 actuator control electronics (ACE-L2) from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (b) Disconnect connector DM27107A from the left outboard aileron PCU, M27107.
- (c) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27107A at the LOB PCU (WDM 27-11-11):

NOTE: Look for a short circuit between these two wires.

DM27122AA	DM27107A
pin E12	pin 19
pin E13	pin 7

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ACE-L2. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-connect connector DM27107A to the aileron PCU.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - 5) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Replace the left outboard aileron power control unit (PCU), M27107. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Re-install the ACE-L2. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASKS 886-887

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.87
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

888. Aileron PCU (Right Inboard) Actuation Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10214.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the fault isolation procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring for the ram transducer on the aileron PCU:
 - (a) Remove the right actuator control electronics (ACE-R) from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Disconnect connector DM27208A from the right inboard aileron PCU, M27208.
 - (c) Do a wiring check between these pins of connector DM27221AA for the ACE-R and connector DM27208A at the RIB PCU (WDM 27-11-14):

NOTE: Look for a short circuit between these two wires.

DM27221AA	DM27208A
pin E12	pin 19
pin E13	pin 7

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ACE-R. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-connect connector DM27208A to the aileron PCU.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - 5) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Replace the right inboard aileron power control unit (PCU), M27208. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801

EFFECTIVITY
ARO ALL

27-11 TASKS 887-888

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL

- (a) Re-install the ACE-R. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

889. Aileron PCU (Right Outboard) Actuation Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10215.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the fault isolation procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring for the ram transducer on the aileron PCU:
 - (a) Remove the left 1 actuator control electronics (ACE-L1) from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Disconnect connector DM27207A from the right outboard aileron PCU, M27207.
 - (c) Do a wiring check between these pins of connector DM27121AA for the ACE-L1 and connector DM27207A at the ROB PCU (WDM 27-11-13):

NOTE: Look for a short circuit between these two wires.

DM27121AA	DM27207A
pin E12	pin 19
pin E13	pin 7

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ACE-L1. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-connect connector DM27207A to the aileron PCU.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
 - 5) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Replace the right outboard aileron power control unit (PCU), M27207. These are the tasks:

EFFECTIVITY
ARO ALL

27-11 TASKS 888-889

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.89
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
- Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Re-install the ACE-L1. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Actuator Confidence.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

890. Left-2 Wheel Position Transducer Signal Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12004.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do the control wheel adjustment procedure. To do this check, do this task: Control Wheel and Cable Adjustment (Rigging), AMM TASK 27-11-00-700-802.
 - (a) If you find a problem with the adjustment, then do these steps:
 - 1) Adjust the transducer. To adjust it, do this task: Wheel Position Transducer (LVDT) Adjustment, AMM TASK 27-11-00-820-801.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
 - (b) If you do not find a problem with the adjustment, then continue.
- (2) Do this check of the wheel position transducer feedback wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU

EFFECTIVITY
ARO ALL

27-11 TASKS 889-890

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.90
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27132 from the disconnect panel on the left end of wheel control rods.
- (d) Do a wiring check between these pins of connector DM27321AC for the ACE-C and connector DM27132 (WDM 27-11-12):

DM27321AC	DM27132
pin F15	pin 5
pin G15	pin 6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27132 to the disconnect panel.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- 7) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27132 to the disconnect panel.
- (3) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 890

D633W103-ARO

Page 298.91
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left-2 wheel position transducer, M27132. These are the tasks:
- Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

891. Left-3 Wheel Position Transducer Signal Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12005.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do the control wheel adjustment procedure. To do this check, do this task: Control Wheel and Cable Adjustment (Rigging), AMM TASK 27-11-00-700-802.
- (a) If you find a problem with the adjustment, then do these steps:
- 1) Adjust the transducer. To adjust it, do this task: Wheel Position Transducer (LVDT) Adjustment, AMM TASK 27-11-00-820-801.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.

EFFECTIVITY
ARO ALL

27-11 TASKS 890-891

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.92
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If the maintenance message shows on the ground test display, then continue.
- (b) If you do not find a problem with the adjustment, then continue.
- (2) Do this check of the wheel position transducer feedback wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27133 from the disconnect panel on the left end of wheel control rods.
- (d) Do a wiring check between these pins of connector DM27221AC for the ACE-R and connector DM27133 (WDM 27-11-14):

DM27221AC	DM27133
pin D3	pin 5
pin E2	pin 6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27133 to the disconnect panel.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-11 TASK 891

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.93
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- 7) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27133 to the disconnect panel.
- (3) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Close these circuit breakers:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left-3 wheel position transducer, M27133. These are the tasks:
 - Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

892. Right Inboard Aileron PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15023.

B. Initial Evaluation

- (1) Close this circuit breaker:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	CBA3-R	AIL PCU

- (a) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-11 TASKS 891-892

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.94
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:

- (a) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- (c) Remove PSA-R, M24201, from E5-1. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (d) Disconnect connector DM27208A from the right inboard aileron power control unit (RIB PCU), M27208.
 - (e) Disconnect connector DM27207B from the right outboard aileron power control unit (ROB PCU), M27207.
 - (f) Do a wiring check between these pins of connector DM27208A for the RIB PCU and connector DM24201AD at the PSA-R (WDM 27-11-14):

DM27208A	DM24201AD
pin 16	pin 10

- (g) Do a wiring check between these pins of connector DM27207B for the ROB PCU and connector DM24201AD at the PSA-R (WDM 27-11-14):

DM27207B	DM24201AD
pin 1	pin 10

- (h) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27207B to the ROB PCU.
 - 3) Re-connect connector DM27208A to the RIB PCU.
 - 4) Re-connect connector DM24201AD to the PSA-R.
 - 5) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- (6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

EFFECTIVITY
ARO ALL

27-11 TASK 892

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.95
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (i) If you do not find a problem with the wiring, then continue.
- (2) Replace the PSA-R. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the Right inboard aileron PCU, M27208. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the right outboard aileron PCU, M27207. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— END OF TASK —————

893. Right Outboard Aileron PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15024.

B. Initial Evaluation

- (1) Close this circuit breaker:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	CBA3-L	AIL PCU

- (a) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-11 TASKS 892-893

D633W103-ARO

Page 298.96
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:

- (a) Open this circuit breaker and install safety tag:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- (c) Remove PSA-L, M24101, from E1-6. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (d) Disconnect connector DM27208B from the right inboard aileron power control unit (RIB PCU), M27208.
 - (e) Disconnect connector DM27207A from the right outboard aileron power control unit (ROB PCU), M27207.
 - (f) Do a wiring check between these pins of connector DM27207A for the ROB PCU and connector DM24101AD at the PSA-L (WDM 27-11-13):

DM27207A	DM24101AD
pin 16	pin 10

- (g) Do a wiring check between these pins of connector DM27208B for the RIB PCU and connector DM24101AD at the PSA-L (WDM 27-11-13):

DM27208B	DM24101AD
pin 1	pin 10

- (h) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27207A to the ROB PCU.
 - 3) Re-connect connector DM27208B to the RIB PCU.
 - 4) Re-connect connector DM24101AD to the PSA-L.

EFFECTIVITY
ARO ALL

27-11 TASK 893

D633W103-ARO

Page 298.97
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (i) If you do not find a problem with the wiring, then continue.
- (2) Replace the PSA-L. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the Right inboard aileron PCU, M27208. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the right outboard aileron PCU, M27207. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-11 TASK 893

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.98
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

894. Left Inboard Flaperon PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15025.

B. Initial Evaluation

- (1) Close this circuit breaker on the right power supply assembly (PSA-R), M24201:
- (a) A5, FLPRN PCU
 - (b) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
- (a) Open this circuit breaker and install safety tag:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- (c) Remove the PSA-R, M24201, from the E5-1 shelf.
- (d) Remove connector DM27110 from the left inboard flaperon power control unit (LIB PCU), M27110.
- (e) Do a wiring check between these pins of connector DM27110 for the LIB PCU and connector DM24201AD at the PSA-R (WDM 27-11-16):

DM27110	DM24201AD
pin 16	pin 22

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27110 to the LIB PCU, M27110.
 - 3) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

EFFECTIVITY
ARO ALL

27-11 TASK 894

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.99
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Replace the PSA-R, M24201. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the LIB PCU, M27110. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

895. Right Inboard Flaperon PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15027.

B. Initial Evaluation

- (1) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11

- (a) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-11 TASKS 894-895

D633W103-ARO

Page 298.100
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Disconnect connector D11013P from P110.
- (c) Disconnect connector DM27210 from the right inboard flap power control unit (RIB PCU), M27210.
- (d) Do a wiring check between these pins of connector DM27210 for the RIB PCU and connector D11013P at the P110 (WDM 27-11-18):

DM27210	D11013P
pin 16	pin 9

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27210 to the RIB PCU, M27210.
 - 3) Re-connect connector D11013P to the P110.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-11 TASK 895

D633W103-ARO

Page 298.101
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (2) Do this check of the power wiring:
- (a) Re-connect connector DM27210 to the RIB PCU, M27210.
 - (b) Disconnect connector DM27119 from the spoiler PCU No. 4, M27119.
 - (c) Do a wiring check between these pins of connector DM27119 for the spoiler PCU No. 4 and connector D11013P at the P110 (WDM 27-11-18) (WDM 27-61-13):

DM27119	D11013P
pin 10	pin 9

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27119 to the spoiler PCU No. 4, M27119.
 - 3) Re-connect connector D11013P to the P110.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (3) Do this check of the power wiring:
- (a) Re-connect connector DM27119 to the spoiler PCU No. 4, M27119.
 - (b) Disconnect connector DM27219 from the spoiler PCU No. 11, M27219.
 - (c) Do a wiring check between these pins of connector DM27219 for the spoiler PCU No. 11 and connector D11013P at the P110 (WDM 27-11-18) (WDM 27-61-13):

DM27219	D11013P
pin 10	pin 9

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27219 to the spoiler PCU No. 11, M27219.
 - 3) Re-connect connector D11013P to the P110.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-11 TASK 895

D633W103-ARO

Page 298.102
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (4) Replace this circuit breaker

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11

- (a) These are the tasks:
- Circuit Breaker - Removal, AMM TASK 24-09-00-000-818-002
 - Circuit Breaker - Installation, AMM TASK 24-09-00-400-814-002
- (b) Re-connect connector DM27219 to the spoiler PCU No. 11, M27219.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the RIB PCU, M27210. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (7) Replace the spoiler PCU No. 4, M27119. These are the tasks:

EFFECTIVITY
ARO ALL

27-11 TASK 895

D633W103-ARO

Page 298.103
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
- Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (8) Replace the spoiler PCU No. 11, M27219. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— END OF TASK —————

896. Right Outboard Flaperon PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15028.

B. Initial Evaluation

- (1) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	CBA5-C	FLPRN PCU

- (a) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:

- (a) Open this circuit breaker and install safety tag:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- (c) Remove the PSA-C, M24301, from the E2-6 shelf.
- (d) Remove connector DM27209 from the right outboard flaperon power control unit (ROB PCU), M27209.

EFFECTIVITY
ARO ALL

27-11 TASKS 895-896

D633W103-ARO

Page 298.104
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) Do a wiring check between these pins of connector DM27209 for the ROB PCU and connector DM24301AD at the PSA-C (WDM 27-11-17):

DM27209	DM24301AD
pin 16	pin 22

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27209 to the ROB PCU, M27209.
 - 3) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- 5) Remove the safety tag and close this circuit breaker:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Replace the PSA-C, M24301. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the ROB PCU, M27209. These are the tasks:

EFFECTIVITY
ARO ALL

27-11 TASK 896

D633W103-ARO

Page 298.105
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
- Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

897. Wheel Force Transducer Assembly #2 Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12501.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Force Transducer.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Force Transducer.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the wheel force transducer, M27129. These are the tasks:
 - Wheel Force Transducer - Removal, AMM TASK 27-11-08-000-801
 - Wheel Force Transducer - Installation, AMM TASK 27-11-08-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Force Transducer.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Repair the excitation and feedback wiring for the force transducer:
 - (a) Repair the wiring between these pins of connector DM27321AC for the ACE-C and connector DM27129B for the force transducer (WDM 27-11-12):

EFFECTIVITY
ARO ALL

27-11 TASKS 896-897

D633W103-ARO

Page 298.106
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27321AC

pin A11 pin 9
pin A10 pin 8
pin C10 pin 5
pin B11 pin 1
pin C11 pin 6

DM27129B

- 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Force Transducer.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

898. LOB Aileron PCU Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16008.

B. Initial Evaluation

NOTE: This message can only occur when you do the Left Aileron Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: Select NO if you can not align them. If you select YES this test will pass and the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Alignment.

NOTE: This ground test adjusts (rigs) the aileron. AMM 27-11-00/501 contains information that will help you do this ground test.

 - (a) If you could adjust the aileron correctly during the ground test, then you corrected the fault.
 - (b) If you could not adjust the aileron correctly during the ground test, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left outboard aileron power control unit (LOB PCU), M27107. These are the tasks:
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801

EFFECTIVITY
ARO ALL

27-11 TASKS 897-898

D633W103-ARO

Page 298.107
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

899. LIB Aileron PCU Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16009.

B. Initial Evaluation

NOTE: This message can only occur when you do the Left Aileron Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: Select NO if you can not align them. If you select YES this test will pass and the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Alignment.
NOTE: This ground test adjusts (rigs) the aileron. AMM 27-11-00/501 contains information that will help you do this ground test.
 - (a) If you could adjust the aileron correctly during the ground test, then you corrected the fault.
 - (b) If you could not adjust the aileron correctly during the ground test, then continue.
- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left inboard power control unit (LIB PCU), M27108. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-11 TASKS 898-899

D633W103-ARO

Page 298.108
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

900. ROB Aileron PCU Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16010.

B. Initial Evaluation

NOTE: This message can only occur when you do the Right Aileron Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: Select NO if you can not align them. If you select YES this test will pass and the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Alignment.
- NOTE: This ground test adjusts (rigs) the aileron. AMM 27-11-00/501 contains information that will help you do this ground test.
- (a) If you could adjust the aileron correctly during the ground test, then you corrected the fault.
- (b) If you could not adjust the aileron correctly during the ground test, then continue.
- (2) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (4) Exchange the ACE for M27207. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (6) Replace the right outboard power control unit (ROB PCU), M27207. These are the tasks:
- Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-11 TASK 900

D633W103-ARO

Page 298.109
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

901. RIB Aileron PCU Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16011.

B. Initial Evaluation

NOTE: This message can only occur when you do the Right Aileron Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: Select NO if you can not align them. If you select YES this test will pass and the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Alignment.

NOTE: This ground test adjusts (rigs) the aileron. AMM 27-11-00/501 contains information that will help you do this ground test.

- (a) If you could adjust the aileron correctly during the ground test, then you corrected the fault.
- (b) If you could not adjust the aileron correctly during the ground test, then continue.
- (2) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right inboard power control unit (RIB PCU), M27208. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

902. LIB Flaperon PCU Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16013.

B. Initial Evaluation

NOTE: This message can only occur when you do the Left Flaperon Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: Select NO if you can not align them. If you select YES this test will pass and the maintenance message will not show on the ground test display.

EFFECTIVITY
ARO ALL

27-11 TASKS 901-902

D633W103-ARO

Page 298.110
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Alignment.

NOTE: This ground test adjusts (rigs) the flaperon. AMM 27-11-00/501 contains information that will help you do this ground test.

- (a) If you could adjust the flaperon correctly during the ground test, then you corrected the fault.
 - (b) If you could not adjust the flaperon correctly during the ground test, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left inboard power control unit (LIB PCU), M27110. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

903. ROB Flaperon PCU Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16014.

B. Initial Evaluation

NOTE: This message can only occur when you do the Right Flaperon Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: Select NO if you can not align them. If you select YES this test will pass and the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Alignment.

NOTE: This ground test adjusts (rigs) the flaperon. AMM 27-11-00/501 contains information that will help you do this ground test.

- (a) If you could adjust the flaperon correctly during the ground test, then you corrected the fault.
 - (b) If you could not adjust the flaperon correctly during the ground test, then continue.

EFFECTIVITY
ARO ALL

27-11 TASKS 902-903

D633W103-ARO

Page 298.111
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right outboard power control unit (ROB PCU), M27209. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

904. **RIB Flaperon PCU Adjustment Problems - Fault Isolation**

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16015.

B. Initial Evaluation

NOTE: This message can only occur when you do the Right Flaperon Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: Select NO if you can not align them. If you select YES this test will pass and the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Alignment.

NOTE: This ground test adjusts (rigs) the flaperon. AMM 27-11-00/501 contains information that will help you do this ground test.
- (a) If you could adjust the flaperon correctly during the ground test, then you corrected the fault.
- (b) If you could not adjust the flaperon correctly during the ground test, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.

EFFECTIVITY
ARO ALL

27-11 TASKS 903-904

D633W103-ARO

Page 298.112
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right inboard power control unit (RIB PCU), M27210. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

905. Left Inboard Aileron PCU Blocking Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10204.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, left Aileron Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Do a check for 28 VDC from terminal QA41 of terminal block TB1101 at the E1-1 shelf to structure ground (WDM 27-11-11).
 - (b) If there is not 28 VDC at terminal QA41 of terminal block TB1101, then do these steps:
 - 1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 2) Disconnect connector D11013P from the left power management panel, P110.
- 3) Do a wiring check between these pins of terminal block TB1101 at the E1-1 shelf and the connector D11013P at the P110 (WDM 27-11-11):

EFFECTIVITY
ARO ALL

27-11 TASKS 904-905

D633W103-ARO

Page 298.113
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

TB1101

term QA41

D11013P

pin 1

- 4) If you find a problem with the wiring, then do these steps:
- Repair the wiring.
 - Re-connect connector D11013P to the left power management panel, P110.
 - Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
- 5) If you do not find a problem with the wiring, then continue.
- 6) Replace the left power management panel, P110. These are the tasks:
- Power Panel Removal, AMM TASK 24-09-01-000-801
 - Power Panel Installation, AMM TASK 24-09-01-400-801
- Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If there is 28 VDC at terminal QA41 of terminal block TB1101, then continue.
- (2) Do this check of the control wiring for the blocking solenoid-operated valve (SOV):
- Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf.

EFFECTIVITY
ARO ALL

27-11 TASK 905

D633W103-ARO

Page 298.114
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Disconnect connector DM27108B from the left inboard aileron power control unit (RIB PCU), M27108.
- (d) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27108B at the LIB PCU (WDM 27-11-11):

DM27122AA	DM27108B
pin A15	pin 2

- (e) Do a wiring check between these pins of terminal block TB1101 and connector DM27108B at the PCU (WDM 27-11-11):

TB1101	DM27108B
term QA41	pin 1

- (f) Do a check for continuity between pin A7 of connector DM27122AB and structure ground (WDM 27-11-11).
- (g) If there is no continuity, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27108B to the PCU.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (h) If there is a continuity, then continue.
- (3) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect connector DM27108B to the PCU.
- (b) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR

EFFECTIVITY
ARO ALL

27-11 TASK 905

D633W103-ARO

Page 298.115
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left inboard PCU, M27108. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

906. Right Inboard Flaperon PCU Bypass Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10306.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASKS 905-906

D633W103-ARO

Page 298.116
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Disconnect connector D11013P from left power management panel, P110.
- (c) Remove the left-2 actuator control electronics (ACE-L2), M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector DM27122AB for the ACE-L2 and connector D11013P at the P110 (WDM 27-11-18):

DM27122AB	D11013P
pin B6	pin 10

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect the connector D11013P to the P110.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASK 906

D633W103-ARO

Page 298.117
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Do this check of the wiring:
- (a) Disconnect connector DM27210 from the right inboard (RIB) flaperon PCU, M27210.
- (b) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27210 at the RIB PCU (WDM 27-11-18):
- | DM27122AA | DM27210 |
|------------------|----------------|
| pin F2 | pin 17 |
- (c) Do a wiring check between these pins of connector D11013P for the P110 and connector DM27210 at the RIB PCU (WDM 27-11-18):
- | D11013P | DM27210 |
|-----------------|----------------|
| pin 9 | pin 16 |
- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27210 to the PCU.
 - 3) Re-connect connector D11013P to the P110.
 - 4) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers:
- Left Power Management Panel, P110**
- | Row | Col | Number | Name |
|------------|------------|---------------|------------------------------|
| K | 17 | C27631 | FLAPS ELEC CTRL RLY PWR |
| K | 18 | C27625 | AIL TRIM ACTR |
| K | 23 | C27613 | ELEV FEEL ACTR |
| K | 24 | C27612 | STAB TRIM ARM-R |
| K | 25 | C27611 | AIL PCU LIB(BLK)/LOB(BYP) |
| K | 26 | C27610 | FLPRN PCU RIB(BYP)/SPLR 4&11 |
| K | 27 | C27609 | ELEV PCU RIB(BLK)/ROB(BYP) |
| K | 28 | C27608 | ACE-L2 PWR |
- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (3) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect connector DM27210 to the PCU.
- (b) Re-connect connector D11013P to the P110.

EFFECTIVITY
ARO ALL

27-11 TASK 906

D633W103-ARO

Page 298.118
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- (e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard flaperon PCU, M27210. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the left power management panel, P110. These are the tasks:
- Power Panel Installation, AMM TASK 24-09-01-400-801
 - Power Panel Removal, AMM TASK 24-09-01-000-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-11 TASK 906

D633W103-ARO

Page 298.119
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

907. Left-2 Wheel Position Transducer Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12001.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wheel position transducer excitation and feedback wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27132 (the connector for the left-2 wheel position transducer) from the disconnect panel on the left end of wheel control rods.
- (d) Do a wiring check between these pins of connector DM27321AC for the ACE-C and connector DM27132 for the transducer (WDM 27-11-12):

DM27321AC	DM27132
pin G14	pin 9
pin F15	pin 5
pin H14	pin 8
pin G15	pin 6
pin H15	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27132 to the disconnect panel.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 907

D633W103-ARO

Page 298.120
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect connector DM27132 to the disconnect panel.
- (b) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the left-2 wheel position transducer, M27132. These are the tasks:
- Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-11 TASK 907

D633W103-ARO

Page 298.121
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

908. Left-3 Wheel Position Transducer Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12002.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wheel position transducer excitation and feedback wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27133 (the connector for the left-3 wheel position transducer) from the disconnect panel on the left end of wheel control rods.
- (d) Do a wiring check between these pins of connector DM27221AC for the ACE-R and connector DM27133 for the transducer (WDM 27-11-14):

DM27221AC	DM27133
pin D1	pin 9
pin D3	pin 5
pin E1	pin 8
pin E2	pin 6
pin E3	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27133 to the disconnect panel.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 908

D633W103-ARO

Page 298.122
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect connector DM27133 to the disconnect panel.
- (b) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the left-3 wheel position transducer, M27133. These are the tasks:
- Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-11 TASK 908

D633W103-ARO

Page 298.123
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

909. Right-1 Wheel Position Transducer Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12007.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wheel position transducer excitation and feedback wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27122AC (the connector for the right-1 wheel position transducer) from the disconnect panel on the right end of wheel control rods.
- (d) Do a wiring check between these pins of connector DM27122AC for the ACE-L2 and connector DM27231 for the transducer (WDM 27-11-11):

DM27122AC	DM27231
pin G14	pin 9
pin F15	pin 5
pin H14	pin 8
pin G15	pin 6
pin H15	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27231 to the disconnect panel.

EFFECTIVITY
ARO ALL

27-11 TASK 909

D633W103-ARO

Page 298.124
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect connector DM27231 to the disconnect panel.
 - (b) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the right-1 wheel position transducer, M27231. These are the tasks:
- Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-11 TASK 909

D633W103-ARO

Page 298.125
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

910. Right-2 Wheel Position Transducer Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12008.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wheel position transducer excitation and feedback wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27232 (the connector for the right-2 wheel position transducer) from the disconnect panel on the right end of wheel control rods.
- (d) Do a wiring check between these pins of connector DM27321AC for the ACE-C and connector DM27232 for the transducer (WDM 27-11-12):

DM27321AC		DM27232
pin D1	.....	pin 9
pin E2	.....	pin 5
pin E1	.....	pin 8
pin D3	.....	pin 6
pin E3	.....	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27232 to the disconnect panel.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 910

D633W103-ARO

Page 298.126
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect connector DM27232 to the disconnect panel.
- (b) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the right-2 wheel position transducer, M27232. These are the tasks:
- Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-11 TASK 910

D633W103-ARO

Page 298.127
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

911. Right-3 Wheel Position Transducer Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12009.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wheel position transducer excitation and feedback wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27233 (the connector for the right-3 wheel position transducer) from the disconnect panel on the right end of wheel control rods.
- (d) Do a wiring check between these pins of connector DM27221AC for the ACE-R and connector DM27233 for the transducer (WDM 27-11-14):

DM27221AC	DM27233
pin G14	pin 9
pin G15	pin 5
pin H14	pin 8
pin F15	pin 6
pin H15	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27233 to the disconnect panel.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 911

D633W103-ARO

Page 298.128
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect connector DM27233 to the disconnect panel.
- (b) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the right-3 wheel position transducer, M27233. These are the tasks:
- Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Wheel Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-11 TASK 911

D633W103-ARO

Page 298.129
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

912. Right Flaperon Surface Delta Pressure Signal Difference Out Of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10317.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Alignment.

NOTE: This ground test adjusts (rigs) the Flaperon. AMM 27-11-00/501 contains information that will help you do this ground test.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (4) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.

EFFECTIVITY
ARO ALL

27-11 TASK 912

D633W103-ARO

Page 298.130
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (6) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the right outboard flaperon power control unit (PCU), M27209. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the right inboard flaperon PCU, M27210. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

913. Flaperon PCU (Right Outboard) Failed the ACE Monitor Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16057.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-11 TASKS 912-913

D633W103-ARO

Page 298.131
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27209 from the outboard power control unit (PCU) on the right flaperon.
- (d) Do a wiring check between these pins of connector DM27321AA (for ACE-C) and connector DM27209 (at the flaperon PCU) (WDM 27-11-17):

DM27321AA	DM27209
pin K2	pin 7
pin K1	pin 19
pin F1	pin 5
pin G1	pin 15

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27209 to the outboard PCU on the right flaperon.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-11 TASK 913

D633W103-ARO

Page 298.132
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (f) If you do not find a problem with the wiring, then continue.

- 1) Re-connect connector DM27209 to the outboard PCU on the right flaperon.
- 2) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 3) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (4) Replace the outboard PCU on the right flaperon, M27209. These are the tasks:

- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
- Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

914. Right Flaperon Surface Actuation Confidence Test Failed - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10313, 27-10489, 27-10492, 27-10495.

EFFECTIVITY
ARO ALL

27-11 TASKS 913-914

D633W103-ARO

Page 298.133
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Examine the two flaperon power control units (PCU) for the right flaperon to see if they are mechanically disconnected from the flaperon or the wing.
 - (a) If a flaperon PCUs is disconnected or damaged, then do these steps:
 - 1) Replace the applicable flaperon PCU, M27209 or M27210. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - a) Repair or replace all other damaged parts.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, continue.
- (4) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, continue.
- (6) Do this test of the outboard PCU for the right flaperon:

EFFECTIVITY
ARO ALL

27-11 TASK 914

D633W103-ARO

Page 298.134
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (a) Set the L and R FLT CONTROL HYD VALVE PWR switches for the WING to the SHUTOFF position.
- (b) Set the C FLT CONTROL HYD VALVE PWR switch for the WING to the NORM position.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (c) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (d) Look at page 2 of the flight controls maintenance pages on the MFD. To see this page, do this task: Showing a Maintenance Page, AMM TASK 31-61-00-800-804.
- (e) Monitor the right outboard FLAPERON POSITION indication on the maintenance page. At the same time look at the flaperon to see if it moves.
- (f) Turn and hold one of the control wheels fully clockwise.
 - 1) Look at the right flaperon and make sure it is fully down.
NOTE: You do not need to measure the flaperon movement. It is satisfactory if you can see that it moved down.
 - 2) Make sure the FLAPERON POSITION indication shows -5.98 to -6.63.
 - 3) Make sure the FLAPERON (right outboard) DELTA PRESS or PCU FORCE indication (whichever shows on the maintenance page) shows +5000 to +8000.
NOTE: This shows that the flaperon PCU is fully extended.
For the flaperon PCUs (unlike the other PCUs), the DELTA PRESS indication shows the force that the PCU causes, not the pressure in the PCU. Thus, the indication can show values that are more than the hydraulic system pressure.
- (g) Turn and hold one of the control wheels fully counterclockwise.
 - 1) Look at the right flaperon and make sure it is fully up.
NOTE: You do not need to measure the flaperon movement. It is satisfactory if you can see that it moved up.
 - 2) Make sure the FLAPERON POSITION indication shows +5.98 to +6.63.
 - 3) Make sure the FLAPERON DELTA PRESS or PCU FORCE indication (whichever shows on the maintenance page) shows -2500 to -5000.
- (h) Release the control wheel.
 - 1) Make sure the right flaperon is in the neutral position.
NOTE: You do not need to measure the flaperon position. It is satisfactory if you can see that it is approximately level.
- (i) If the flaperon or the indications did not operate correctly (as specified in the steps above), then do these steps:

EFFECTIVITY
ARO ALL

27-11 TASK 914

D633W103-ARO

Page 298.135
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 2) Remove the ACE-C, M27321.
- 3) Disconnect connector DM27209 from the left outboard flaperon PCU, M27209.
- 4) Do a wiring check between these pins of connector DM27321AA at the E2-5 shelf and connector DM27209 at the left outboard flaperon PCU, M27209 (WDM 27-11-17):

NOTE: Do a check for a short between the wires.

<u>DM27321AA</u>	<u>DM27209</u>
pin F1	pin 5
pin G1	pin 15
pin K1	pin 19
pin K2	pin 7

- 5) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27209.
 - c) Re-install the ACE-C, M27321.
 - d) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 6) If you no not find a problem with the wiring, then continue.
 - 7) Replace the outboard PCU for the right flaperon, M27209. These are the tasks:

EFFECTIVITY
ARO ALL

27-11 TASK 914

D633W103-ARO

Page 298.136
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- 8) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
 - 9) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (j) If the flaperon and the indications operated correctly, then continue.
- (7) Do this test of the inboard PCU on the right flaperon:
- (a) Set the L and C FLT CONTROL HYD VALVE PWR switches for the WING to the SHUTOFF position.
 - (b) Set the R FLT CONTROL HYD VALVE PWR switch for the WING to the NORM position.



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (c) For the right hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (d) Look at page 2 of the flight controls maintenance pages on the MFD. To see this page, do this task: Showing a Maintenance Page, AMM TASK 31-61-00-800-804.
- (e) Monitor the right inboard FLAPERON POSITION indication on the maintenance page. At the same time look at the flaperon to see if it moves.
- (f) Turn and hold one of the control wheels fully clockwise.
 - 1) Look at the right flaperon and make sure it is fully down.

NOTE: You do not need to measure the flaperon movement. It is satisfactory if you can see that it moved down.
 - 2) Make sure the FLAPERON POSITION indication shows -5.98 to -6.63.
 - 3) Make sure the FLAPERON (right inboard) DELTA PRESS or PCU FORCE indication (whichever shows on the maintenance page) shows +5000 to +8000.
- (g) Turn and hold one of the control wheels fully counterclockwise.
 - 1) Look at the right flaperon and make sure it is fully up.

NOTE: You do not need to measure the flaperon movement. It is satisfactory if you can see that it moved up.
 - 2) Make sure the FLAPERON POSITION indication shows +5.98 to +6.63.
 - 3) Make sure the FLAPERON DELTA PRESS or PCU FORCE indication (whichever shows on the maintenance page) shows -2500 to -5000.
- (h) Release the control wheel.
 - 1) Make sure the right flaperon is in the neutral position.

NOTE: You do not need to measure the flaperon position. It is satisfactory if you can see that it is approximately level.
- (i) If the flaperon or the indications did not operate correctly (as specified in the steps above), then do these steps:

EFFECTIVITY
ARO ALL

27-11 TASK 914

D633W103-ARO

Page 298.137
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Open these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- 2) Remove the ACE-L2, M27122.
- 3) Disconnect connector DM27210 from the left inboard flaperon PCU, M27210.
- 4) Do a wiring check between these pins of connector DM27122AA at the E1-1 shelf and connector DM27210 at the left inboard flaperon PCU, M27210 (WDM 27-11-15):

NOTE: Do a check for a short between the wires.

DM27122AA	DM27210
pin F1	pin 5
pin G1	pin 15
pin K1	pin 19
pin K2	pin 7

- 5) If you find a problem with the wiring, then do these steps:
- Repair the wiring.
 - Re-connect connector DM27210.
 - Re-install the ACE-L2, M27122.
 - Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Flaperon Actuator Confidence.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
- 6) If you no not find a problem with the wiring, then continue.
- 7) Replace the inboard PCU on the right flaperon, M27210. These are the tasks:

EFFECTIVITY
ARO ALL

27-11 TASK 914

D633W103-ARO

Page 298.138
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- 8) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- 9) If the maintenance message does not show on the ground test display, you corrected the fault.
- (j) If the flaperon and the indications operated correctly, then continue.
- (8) Replace the outboard PCU on the right flaperon, M27209. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (9) Replace the inboard PCU on the right flaperon, M27210. These are the tasks:
- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

915. Flaperon PCU (Left Inboard) Failed the ACE Monitor Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16054.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

EFFECTIVITY
ARO ALL

27-11 TASKS 914-915

D633W103-ARO

Page 298.139
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:
- (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27110 from the inboard power control unit (PCU) on the left flaperon.
- (d) Do a wiring check between these pins of connector DM27221AA (for ACE-R) and connector DM27110 (at the flaperon PCU) (WDM 27-11-16):

DM27221AA	DM27110
pin K2	pin 7
pin K1	pin 19
pin F1	pin 5
pin G1	pin 15

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27110 to the inboard PCU on the left flaperon.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-11 TASK 915

D633W103-ARO

Page 298.140
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
 - 1) Re-connect connector DM27110 to the inboard PCU on the left flaperon.
 - 2) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (4) Replace the inboard PCU on the left flaperon, M27110. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

916. Flaperon PCU (Left Outboard) Failed the ACE Monitor Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16055.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:

EFFECTIVITY
ARO ALL

27-11 TASKS 915-916

D633W103-ARO

Page 298.141
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:
- (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27109 from the outboard power control unit (PCU) on the left flaperon.
- (d) Do a wiring check between these pins of connector DM27121AA (for ACE-L1) and connector DM27109 (at the flaperon PCU) (WDM 27-11-15):

DM27121AA	DM27109
pin K2	pin 7
pin K1	pin 19
pin F1	pin 5
pin G1	pin 15

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27109 to the outboard PCU on the left flaperon.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU

EFFECTIVITY
ARO ALL

27-11 TASK 916

D633W103-ARO

Page 298.142
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
 - 1) Re-connect connector DM27109 to the outboard PCU on the left flaperon.
 - 2) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Close these circuit breakers:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (4) Replace the outboard PCU on the left flaperon, M27109. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

917. Flaperon PCU (Right Inboard) Failed the ACE Monitor Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16056.

EFFECTIVITY
ARO ALL

27-11 TASKS 916-917

D633W103-ARO

Page 298.143
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27210 from the inboard power control unit (PCU) on the right flaperon.
- (d) Do a wiring check between these pins of connector DM27122AA (for ACE-L2) and connector DM27210 (at the flaperon PCU) (WDM 27-11-18):

DM27122AA	DM27210
pin K2	pin 7
pin K1	pin 19
pin F1	pin 5
pin G1	pin 15

- (e) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-11 TASK 917

D633W103-ARO

Page 298.144
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-connect connector DM27210 to the inboard PCU on the right flaperon.
- 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
 - 1) Re-connect connector DM27210 to the inboard PCU on the right flaperon.
 - 2) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (4) Replace the inboard PCU on the left flaperon, M27210. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

918. Wheel Force Transducer (#2) Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16024.

EFFECTIVITY
ARO ALL

27-11 TASKS 917-918

D633W103-ARO

Page 298.145
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: This message can only occur when you do the Wheel Force Transducer ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed, the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Look at the Flight Controls Maintenance Page 1 on the MFD. To see this page, do this task: Showing a Maintenance Page, AMM TASK 31-61-00-800-804.
- (2) Do the steps that follow to apply a force to the Captains control wheels and at the same time monitor the values for the WHEEL POSITIONS and the WHEEL FORCES on the Flight Controls Maintenance Page 1.

- (a) Release the Captains control wheel to the neutral position.

- 1) Make sure the two WHEEL FORCE indications, on the maintenance page 1, show between -1.00 and 1.00.

NOTE: The two wheel force transducers are contained in a single part. Each will give approximately the same indication as the other.

- (b) Turn the control wheel fully counterclockwise.

- 1) Make sure the two WHEEL FORCE indications show between -24.00 and -10.00.

- (c) Turn the Captains control wheel fully clockwise.

- 1) Make sure the two WHEEL FORCE indications show between 10.00 and 24.00.

- (d) Release the Captains control wheels.

- (3) Do the steps that follow to apply a force to the First Officers control wheels and at the same time monitor the values for the WHEEL POSITIONS and the WHEEL FORCES on the Flight Controls Maintenance Page 1.

- (a) Release the First Officers control wheel to the neutral position.

- 1) Make sure the two WHEEL FORCE indications, on the maintenance page 1, show between -1.00 and 1.00.

NOTE: The two wheel force transducers are contained in a single part. Each will give approximately the same indication as the other.

- (b) Turn the First Officers control wheel fully counterclockwise.

- 1) Make sure the two WHEEL FORCE indications show between -24.00 and -10.00.

- (c) Turn the First Officers control wheel fully clockwise.

- 1) Make sure the two WHEEL FORCE indications show between 10.00 and 24.00.

- (d) Release the First Officers control wheels.

- (4) If you find a problem with indication, then do these steps.

- (a) Do this task: Control Wheel Force Versus Travel Test, AMM TASK 27-11-00-720-801.

- (b) If the wheel force transducers do not operate as specified in the task, then do these steps:

- 1) Replace the wheel force transducer. These are the tasks:

- Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
- Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801

- a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Control Wheel Force Transducer Test, AMM TASK 27-11-00-710-802.

EFFECTIVITY
ARO ALL

27-11 TASK 918

D633W103-ARO

Page 298.146
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- b) If the maintenance message does not show on the ground test display, you corrected the fault.
- c) If the maintenance message shows on the ground test display, then continue.
- (c) If the wheel force transducers operate as specified in the task, then continue.
- (5) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27129 from the disconnect panel.
- (d) Do a wiring check between these pins of connector DM27321AC for the ACE-C and connector DM27129B (WDM 27-11-12):

DM27321AC	DM27129A
pin C10	pin 5
pin C11	pin 6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27129A to the disconnect panel.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Control Wheel Force Transducer Test, AMM TASK 27-11-00-710-802.

EFFECTIVITY
ARO ALL

27-11 TASK 918

D633W103-ARO

Page 298.147
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- 7) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27129B to the disconnect panel.
- (6) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Control Wheel Force Transducer Test, AMM TASK 27-11-00-710-802.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the wheel force transducer, M27129. These are the tasks:
 - Wheel Position Transducers Removal, AMM TASK 27-11-02-000-801
 - Wheel Position Transducers Installation, AMM TASK 27-11-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Control Wheel Force Transducer Test, AMM TASK 27-11-00-710-802.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

919. Right Flaperon Surface Delta Pressure Signal Difference Out of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10315.

B. Initial Evaluation

- (1) Make sure that the primary flight computer (PFC) is in NORMAL mode.
- (2) Pressurize all the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (a) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (3) Turn and hold the control wheel fully left.
 - (a) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.

EFFECTIVITY
ARO ALL

27-11 TASKS 918-919

D633W103-ARO

Page 298.148
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) Turn and hold the control wheel fully right.
 - (a) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display (on the MAT).
- (5) If the MAT shows NOT ACTIVE for the maintenance message during all the steps above, then there was an intermittent fault.
 - (a) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Alignment.

NOTE: This ground test adjusts (rigs) the Flaperon. AMM 27-11-00/501 contains information that will help you do this ground test.

 - (a) Make sure that the primary flight computer (PFC) is in NORMAL mode.
 - (b) Pressurize all the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (c) Turn and hold the control wheel fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (d) Turn and hold the control wheel fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (e) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (f) If the maintenance message shows on the MAT, then continue.
- (2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Flaperon Position.
 - (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - (b) If no maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Pressurize all hydraulic systems power. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.

EFFECTIVITY
ARO ALL

27-11 TASK 919

D633W103-ARO

Page 298.149
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Turn and hold the control wheel fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (c) Turn and hold the control wheel fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (e) If the maintenance message shows on the MAT, then continue.
- (5) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (6) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Pressurize all hydraulic systems power. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (b) Turn and hold the control wheel fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (c) Turn and hold the control wheel fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (e) If the maintenance message shows on the MAT, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the right outboard flap power control unit (PCU), M27209. These are the tasks:

EFFECTIVITY
ARO ALL

27-11 TASK 919

D633W103-ARO

Page 298.150
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
- Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
- (a) Pressurize all hydraulic systems power. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (b) Turn and hold the control wheel fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (c) Turn and hold the control wheel fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (e) If the maintenance message shows on the MAT, then continue.
- (9) Replace the right inboard flaperon PCU, M27210. These are the tasks:
 - Flaperon Power Control Unit - Removal, AMM TASK 27-11-12-000-801
 - Flaperon Power Control Unit - Installation, AMM TASK 27-11-12-400-801
 - (a) Pressurize all hydraulic systems power. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (b) Turn and hold the control wheel fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (c) Turn and hold the control wheel fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

————— **END OF TASK** —————

920. Control Wheel Damper Shows Red or No Color

A. Fault Isolation Procedure

- (1) If a minimum of 1/16 of an inch (1.6 millimeter) in width of green shows in the window of the damper, then the damper is serviceable.

NOTE: The damper must be at room temperature to get the correct indication.

- (2) If less than 1/16 of an inch (1.6 millimeter) of green shows, then replace the damper. These are the tasks:
 - Wheel Damper Removal, AMM TASK 27-11-03-000-801

EFFECTIVITY
ARO ALL

27-11 TASKS 919-920

D633W103-ARO

Page 298.151
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Wheel Damper Installation, AMM TASK 27-11-03-400-801

— END OF TASK —

921. Aileron Trim Is Necessary to Maintain Straight and Level Flight - Fault Isolation

A. Initial Evaluation

- (1) If the aileron trim that is necessary to maintain straight and level flight is 0.5 unit or less, then there is no fault.
- (2) If the aileron trim that is necessary to maintain straight and level flight is greater than 0.5-unit and less than 0.75 unit, do these steps:
 - (a) Check with the flight crew or review log book entries for system faults in Flight Controls, Fuel Quantity or imbalance, Engine split throttles, EPR, N1 or performance disagreements.
 - 1) If any faults exist, do the applicable tasks to correct the faults.
 - (b) Check the MAT for Flight Control or related Fuel and Engine System fault messages.
 - 1) If any fault messages exist, do the applicable tasks to correct the faults and clear the messages.
 - (c) Do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (d) Select the flap position where trim is more than 0.5 units and do these steps:
 - 1) Use the AILERON trim switches and RUDDER trim knob, on the P8 aft Aisle Stand panel to put the Captain's control wheel and the rudder to the center position.
 - 2) Visually check flight control surfaces and fairings for droops, gaps, asymmetric conditions, misalignments, mismatches or damage.
 - 3) If any conditions are visible, do the applicable tasks to correct the conditions.
 - 4) If you do not find a problem, then there is no fault.
- (3) If the aileron trim that is necessary to maintain straight and level flight is greater than 0.75 unit, then do the Fault Isolation Procedure.

B. Fault Isolation Procedure

- (1) Do these steps to check the lateral control system:
 - (a) Do this task: Aileron and Flaperon - Operational Test, AMM TASK 27-11-00-700-801.
 - 1) Do the applicable adjustment procedure.
 - (b) Do this task: Aileron Trim Test, AMM TASK 27-11-00-700-804.
 - 1) Do the applicable adjustment procedure.
 - (c) Do this task: Spoiler Operational Test, AMM TASK 27-61-00-700-801.
 - 1) Do the applicable adjustment procedure.
 - (d) Do this task: Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11), AMM TASK 27-61-00-700-802.
 - 1) Do the applicable adjustment procedure.

— END OF TASK —

922. Right Inboard Aileron PCU Command Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10218.

EFFECTIVITY
ARO ALL

27-11 TASKS 920-922

D633W103-ARO

Page 298.152
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the right inboard aileron power control unit (PCU-RIB), M27208. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the aileron PCU-RIB command wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU

EFFECTIVITY
ARO ALL

27-11 TASK 922

D633W103-ARO

Page 298.153
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27208A from the aileron PCU-RIB, M27208.
- (d) Do a wiring check between these pins of connector DM27221AA at the E5-2 shelf and connector DM27208A at the aileron PCU-RIB, M27208 (WDM 27-11-14):

DM27221AA	DM27208A
pin B14	pin 8
pin A14	pin 9

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27208A to the aileron PCU-RIB, M27208.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect connector DM27208A to the aileron PCU-RIB, M27208.

EFFECTIVITY
ARO ALL

27-11 TASK 922

D633W103-ARO

Page 298.154
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

923. Right Outboard Aileron PCU Command Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10219.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-11 TASKS 922-923

D633W103-ARO

Page 298.155
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the right outboard aileron power control unit (PCU-ROB), M27207. These are the tasks:
- Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the aileron PCU-ROB command wiring:
- (a) Open these circuit breakers and install safety tags on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27207A from the aileron PCU-ROB, M27207.
- (d) Do a wiring check between these pins of connector DM27121AA at the E1-5 shelf and connector DM27207A at the aileron PCU-ROB, M27207 (WDM 27-11-13):

DM27121AA	DM27207A
pin B14	pin 8
pin A14	pin 9

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27207A to the aileron PCU-ROB, M27207.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR

EFFECTIVITY
ARO ALL

27-11 TASK 923

D633W103-ARO

Page 298.156
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect connector DM27207A to the aileron PCU-ROB, M27207.
 - (b) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

924. Left Inboard Aileron PCU Command Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10220.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.

EFFECTIVITY
ARO ALL

27-11 TASKS 923-924

D633W103-ARO

Page 298.157
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the left inboard aileron power control unit (PCU-LIB), M27108. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the aileron PCU-LIB command wiring:
 - (a) Open these circuit breakers and install DO-NOT-CLOSE tags on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

EFFECTIVITY
ARO ALL

27-11 TASK 924

D633W103-ARO

Page 298.158
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27108A from the aileron PCU-LOB, M27108.
- (d) Do a wiring check between these pins of connector DM27321AA for the ACE-C and connector DM27108A for the aileron PCU-LIB, M27108 (WDM 27-11-12):

DM27321AA	DM27108A
pin B14	pin 8
pin A14	pin 9

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27108A to the aileron PCU-LIB, M27108.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect connector DM27108A to the aileron PCU-LIB, M27108.
 - (b) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM

EFFECTIVITY
ARO ALL

27-11 TASK 924

D633W103-ARO

Page 298.159
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	CBB6-C	ELEV FEEL (C)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

925. Left Outboard Aileron PCU Command Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10221.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the left outboard aileron power control unit (PCU-LOB), M27107. These are the tasks:
 - Aileron Power Control Unit (PCU) Removal, AMM TASK 27-11-11-000-801
 - Aileron Power Control Unit (PCU) Installation, AMM TASK 27-11-11-400-801

EFFECTIVITY
ARO ALL

27-11 TASKS 924-925

D633W103-ARO

Page 298.160
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the aileron PCU-LOB command wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left-2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27107A from the aileron PCU-LOB, M27107.
- (d) Do a wiring check between these pins of connector DM27122AA for the ACE-L2 and connector DM27107A for the aileron PCU-LOB, M27107 (WDM 27-11-11):

DM27122AA	DM27107A
pin B14	pin 8
pin A14	pin 9

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27107A to the aileron PCU-LOB, M27107.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

EFFECTIVITY
ARO ALL

27-11 TASK 925

D633W103-ARO

Page 298.161
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect connector DM27107A to the aileron PCU-LOB, M27107.
 - (b) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

926. Left Aileron PCUs Command Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10222.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the FIM Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

EFFECTIVITY
ARO ALL

27-11 TASKS 925-926

D633W103-ARO

Page 298.162
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Do a wiring check for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

927. Right Aileron PCUs Command Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10223.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the FIM Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do a wiring check for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

928. Control Wheel Moves Beyond First Stop - Fault Isolation

A. Description

- (1) One or both of the control wheels moves beyond the first mechanical stop.

B. Initial Evaluation

- (1) Check the captain's control wheel.
 - (a) Rotate the control wheel fully clockwise or counter-clockwise until the stop is felt.

EFFECTIVITY
ARO ALL

27-11 TASKS 926-928

D633W103-ARO

Page 298.163
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Apply moderate torque to the wheel.
- (c) If the wheel rotates beyond the stop, then do the Fault Isolation Procedure below.
- (d) If the wheel does not rotate beyond the stop, then there was an intermittent fault.
- (2) Check the first officer's control wheel.
 - (a) Rotate the control wheel fully clockwise or counter-clockwise until the stop is felt.
 - (b) Apply moderate torque to the wheel.
 - (c) The wheel may rotate farther until another stop is felt. This over-travel may be greater in one direction than the other. If the wheel rotates more than 1.5 units of trim beyond the first stop (measured at trim tab decal on control wheel), then do the Fault Isolation Procedure below.
 - (d) If the wheel does not rotate more than 1.5 units of trim beyond the first stop, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Captain's control wheel:
 - (a) Examine the left lateral control mechanism for damaged parts or loose parts. Replace or repair parts that have damage.
 - (b) Do this task: Control Wheel and Cable Adjustment (Rigging), AMM TASK 27-11-00-700-802.
 - (c) Rotate the control wheel fully clockwise or counter-clockwise until the stop is felt.
 - (d) Apply moderate torque to the wheel.
 - (e) If the wheel does not rotate beyond the stop, then you corrected the fault.
- (2) First officer's control wheel:
 - (a) Examine the right lateral control mechanism for damaged parts or loose parts. Replace or repair parts that have damage.
 - (b) Do this task: Control Wheel and Cable Adjustment (Rigging), AMM TASK 27-11-00-700-802.
 - (c) Rotate the control wheel fully clockwise or counter-clockwise until the stop is felt.
 - (d) Apply moderate torque to the wheel.
 - (e) If the wheel does not rotate more than 1.5 units of trim beyond the first stop, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-11 TASK 928

D633W103-ARO

Page 298.164
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

801. Rudder Power Control Unit (Lower) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10402.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27009A from the lower rudder power control unit (PCU).
- (d) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27009A at the rudder PCU (WDM 27-21-13):

DM27221AC	DM27009A
pin G3	pin 8
pin F3	pin 9

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27009A to the lower rudder PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 801

D633W103-ARO

Page 201
May 05/2013



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.

- a) If the maintenance message does not show on the ground test display, you corrected the fault.

- (f) If you do not find a problem with the wiring, then continue.

- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Make sure that these circuit breakers are closed on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

- 2) If the maintenance message shows on the ground test display, then continue.

- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.

- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)

- (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-21 TASK 801

D633W103-ARO

Page 202
May 05/2014



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the lower rudder PCU, M27009. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

802. Rudder Power Control Unit (Lower) Damping Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10408.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Open this circuit breaker and attach safety tag on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-L	RUD PCU

- (b) Disconnect connector DM27009B from the lower rudder power control unit (PCU).
- (c) Remove the safety tag and close this circuit breaker on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-L	RUD PCU

- (d) Do a check for 28 VDC from pin 3 of connector DM27009B to structure ground (WDM 27-21-12).
- (e) If there is not 28 VDC at pin 3 of connector DM27009B, then do these steps:
 - 1) Replace the PSA-L. These are the tasks:

EFFECTIVITY
ARO ALL

27-21 TASKS 801-802

D633W103-ARO

Page 203
May 05/2014



777-200/300 FAULT ISOLATION MANUAL

- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- 2) Open this circuit breaker and attach safety tag on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-L	RUD PCU

- 3) Check for short between these pins of connector DM27009B, to the lower rudder PCU, M27009. (WDM 27-21-12)

<u>DM27009B</u>		<u>DM27009B</u>	
Pin 3	.....	Pin 2	
Pin 3	.....	Pin 5	
Pin 3	.....	Pin 6	
Pin 2	.....	Pin 5	
Pin 2	.....	Pin 6	
Pin 5	.....	Pin 6	

- a) If a short is found, repair the wiring.
- 4) Re-connect connector DM27009B to the lower rudder PCU, M27009.
- 5) Remove the safety tag and close this circuit breaker on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-L	RUD PCU

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- b) If the maintenance message shows on the ground test display, then continue.
- 7) Repair the wiring between pin 3 of connector DM27009B and the PSA-L, M24101 (WDM 27-21-12).
- 8) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28 VDC at pin 3 of connector DM27009B, then continue.
- (2) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR

EFFECTIVITY
ARO ALL

27-21 TASK 802

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 204
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27121AC at the E1-5 and connector DM27009B at the rudder PCU (WDM 27-21-12):

DM27121AC	DM27009B
pin H3	pin 2

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27009B to the lower rudder PCU.
 - 3) Re-install the ACE-L1, M27121.
 - 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (3) Do this check of the ground wiring:
- (a) Do a check for continuity from pin A5 of connector DM27121AB at the E1-5 to structure ground (WDM 27-21-12).
- (b) If there is no continuity between pin A5 of connector DM27121AB and structure ground, then do these steps:

EFFECTIVITY
ARO ALL

27-21 TASK 802

D633W103-ARO

Page 205
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring between pin A5 of connector DM27121AB and the PSA-L, M24101.
- 2) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 3) Re-connect connector DM27009B to the lower rudder PCU.
- 4) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If there is continuity between pin A5 of connector DM27121AB and structure ground, then continue.
- (4) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-21 TASK 802

D633W103-ARO

Page 206
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the lower rudder PCU. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

803. Rudder Surface Actuation Confidence Test Failed - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10415, 27-10418, 27-10419, 27-10423, 27-10427, 27-10431, 27-10435, 27-10442, 27-10446, 27-10447, 27-10448, 27-10449, 27-10450, 27-10451.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Examine the three power control units (PCU) for the rudder to see if they are mechanically disconnected from the rudder or the vertical stabilizer.
 - (a) If one of the rudder PCUs is disconnected or damaged, then do these steps:
 - 1) Replace the applicable rudder PCU, M27007, M27008, M27009 . These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - a) Repair or replace all other damaged parts.

EFFECTIVITY
ARO ALL

27-21 TASKS 802-803

D633W103-ARO

Page 207
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
- (2) Do this test of the middle PCU for the rudder:
- (a) Set the FLT CONTROL HYD VALVE PWR C and R switches for the TAIL to the SHUTOFF position.
 - (b) Set the FLT CONTROL HYD VALVE PWR L switch for the TAIL to the NORM position.



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (c) Supply hydraulic power to the left hydraulic system. To supply it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (d) Monitor the RUDDER POSITION MID indication that is on the flight controls maintenance page 2 (on the MFD). At the same time look at the rudder to see if it moves.
- (e) Push and hold the left rudder pedal (captain's or first officer's) fully forward.
 - 1) Look at the rudder and make sure it is fully left.

NOTE: You do not need to measure the rudder movement. It is satisfactory if you can see that it moved left.
 - 2) Make sure the RUDDER POSITION MID indication shows -2.80 to -3.20.
 - 3) Make sure the RUDDER DELTA PRESS MID indication shows +1700 to +3500.

NOTE: This shows that the rudder PCU is fully retracted.
- (f) Push and hold the right rudder pedal (captain's or first officer's) fully forward.
 - 1) Look at the rudder and make sure it is fully right.

NOTE: You do not need to measure the rudder movement. It is satisfactory if you can see that it moved right.
 - 2) Make sure the RUDDER POSITION indication shows +3.30 to +3.70.
 - 3) Make sure the RUDDER DELTA PRESS MID indication shows -1700 to -3500.
- (g) Release the rudder pedals.
 - 1) Make sure the rudder is in the neutral position.

NOTE: You do not need to measure the rudder position. It is satisfactory if you can see that it is approximately in its center position.
- (h) If the rudder or the indications did not operate correctly (as specified in the steps above), then do these steps:
 - 1) Replace the middle PCU on the rudder, M27008. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.

EFFECTIVITY
ARO ALL

27-21 TASK 803

D633W103-ARO

Page 208
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (i) If the rudder and the indications operated correctly, then continue.
- (3) Do this test of the upper PCU on the rudder:
 - (a) Set the FLT CONTROL HYD VALVE PWR L and R switches for the TAIL to the SHUTOFF position.
 - (b) Set the FLT CONTROL HYD VALVE PWR C switch for the TAIL to the NORM position.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (c) Supply hydraulic power to the center hydraulic system. To supply it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (d) Monitor the RUDDER POSITION UPR indication that is on the flight controls maintenance page 2 (on the MFD). At the same time look at the rudder to see if it moves.
- (e) Push and hold the left rudder pedal (captain's or first officer's) fully forward.
 - 1) Look at the rudder and make sure it is fully left.

NOTE: You do not need to measure the rudder movement. It is satisfactory if you can see that it moved left.
 - 2) Make sure the RUDDER POSITION indication shows -2.80 to -3.20.
 - 3) Make sure the RUDDER DELTA PRESS UPR indication shows +1700 to +3500.
- (f) Push and hold the right rudder pedal (captain's or first officer's) fully forward.
 - 1) Look at the rudder and make sure it is fully right.

NOTE: You do not need to measure the rudder movement. It is satisfactory if you can see that it moved right.
 - 2) Make sure the RUDDER POSITION indication shows +3.30 to +3.70.
 - 3) Make sure the RUDDER DELTA PRESS UPR indication shows -1700 to -3500.
- (g) Release the rudder pedals.
 - 1) Make sure the rudder is in the neutral position.

NOTE: You do not need to measure the rudder position. It is satisfactory if you can see that it is approximately in its center position.
- (h) If the rudder or the indications did not operate correctly (as specified in the steps above), then do these steps:
 - 1) Replace the upper PCU on the rudder, M27007. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
- (i) If the rudder and the indications operated correctly, then continue.

EFFECTIVITY
ARO ALL

27-21 TASK 803

D633W103-ARO

Page 209
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Do this test of the lower PCU on the rudder:
- Set the FLT CONTROL HYD VALVE PWR L and C switches for the TAIL to the SHUTOFF position.
 - Set the FLT CONTROL HYD VALVE PWR R switch for the TAIL to the NORM position.



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- Supply hydraulic power to the right hydraulic system. To supply it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - Monitor the RUDDER POSITION LWR indication that is on the flight controls maintenance page 2 (on the MFD). At the same time look at the rudder to see if it moves.
 - Push and hold the left rudder pedal (captain's or first officer's) fully forward.
 - Look at the rudder and make sure it is fully left.
NOTE: You do not need to measure the rudder movement. It is satisfactory if you can see that it moved left.
 - Make sure the RUDDER POSITION indication shows -2.80 to -3.20.
 - Make sure the RUDDER DELTA PRESS LWR indication shows +1700 to +3500.
 - Push and hold the right rudder pedal (captain's or first officer's) fully forward.
 - Look at the rudder and make sure it is fully right.
NOTE: You do not need to measure the rudder movement. It is satisfactory if you can see that it moved right.
 - Make sure the RUDDER POSITION indication shows +3.30 to +3.70.
 - Make sure the RUDDER DELTA PRESS LWR indication shows -1700 to -3500.
 - Release the rudder pedals.
 - Make sure the rudder is in the neutral position.
NOTE: You do not need to measure the rudder position. It is satisfactory if you can see that it is approximately in its center position.
 - If the rudder or the indications did not operate correctly (as specified in the steps above), then do these steps:
 - Replace the lower PCU on the rudder, M27009. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the rudder and the indications operated correctly, then continue.
- (5) Replace the lower PCU on the rudder, M27009. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801

EFFECTIVITY
ARO ALL

27-21 TASK 803

D633W103-ARO

Page 210
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the middle PCU on the rudder, M27008. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the upper PCU on the rudder, M27007. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

804. Rudder Trim Actuator Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10800.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check for power at the rudder trim actuator:
- (a) Open this circuit breaker and attach safety tag on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	CBB8-L	RUD TRIM ACTR (L)

EFFECTIVITY
ARO ALL

27-21 TASKS 803-804

D633W103-ARO

Page 211
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Disconnect electrical connector DM27126A from the rudder trim actuator.
- (d) Remove the safety tag and close this circuit breaker on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	CBB8-L	RUD TRIM ACTR (L)

- (e) Do a check for 28 VDC from pin 1 (+) to pin 8 (-) of connector DM27126A.
- (f) If there is not 28 VDC from pin 1 to pin 8 of connector DM27126A, then do these steps:
- 1) Open this circuit breaker and attach safety tag on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	CBB8-L	RUD TRIM ACTR (L)

- 2) Re-connect connector DM27126A to the rudder trim actuator.
- 3) Replace the PSA-L. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801

NOTE: Close all the circuit breakers on the PSA after you install it.
- 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.

EFFECTIVITY
ARO ALL

27-21 TASK 804

D633W103-ARO

Page 212
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- b) If the maintenance message show on the ground test display, then continue.
- 6) Repair this wiring between the PSA-L (connector DM24101AD) and the rudder trim actuator (connector DM27126A):

DM27126A	DM24101AD
pin 1	pin 36
pin 8	pin 35

- 7) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If there is 28 VDC from pin 1 to pin 8 of connector DM27126A, then continue:
- (2) Do this check of the command wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Make sure that these circuit breakers are closed on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Remove the ACE-R, M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (e) Disconnect connectors DM27126B from the rudder trim actuator.

EFFECTIVITY
ARO ALL

27-21 TASK 804

D633W103-ARO

Page 213
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (f) Do a wiring check between these contacts of connector DM27121AA at the E1-5 shelf and connector DM27126B at the rudder trim actuator (WDM 27-21-15):

DM27121AA	DM27126B
pin A1	pin 11
pin A2	pin 12
pin A3	pin 14
pin B3	pin 13

- (g) Do a wiring check between these contacts of connector DM27221AA at the E5-2 shelf and connector DM27126A at the rudder trim actuator (WDM 27-21-15):

DM27221AA	DM27126A
pin A3	pin 14
pin B3	pin 13
pin B1	pin 5
pin C1	pin 15
pin J10	pin 11

- (h) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connectors DM27126A, and DM27126B to the rudder trim actuator.
- 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU

EFFECTIVITY
ARO ALL

27-21 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 214
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 7) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (i) If you do not find a problem with the wiring, then continue.
- (3) Replace the rudder trim actuator, M27126. These are the tasks:
- Rudder Trim Actuator Removal, AMM TASK 27-21-07-000-801
 - Rudder Trim Actuator Installation, AMM TASK 27-21-07-400-801
- (a) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (c) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (d) Make sure that these circuit breakers are closed on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.

EFFECTIVITY
ARO ALL

27-21 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 215
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (4) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (6) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (7) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

805. Rudder Trim Actuator Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10802.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:

EFFECTIVITY
ARO ALL

27-21 TASKS 804-805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 216
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27126B from the rudder trim actuator.
- (d) Do a wiring check between these contacts of connector DM27121AA at the E1-5 shelf and connector DM27126B at the rudder trim actuator (WDM 27-21-15)

DM27121AA		DM27126B	
pin E4	.....	pin 4	
pin D4	.....	pin 6	
pin A4	.....	pin 9	
pin C4	.....	pin 10	
pin B4	.....	pin 2	

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27126B to the rudder trim actuator.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.

EFFECTIVITY
ARO ALL

27-21 TASK 805

D633W103-ARO

Page 217
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Replace the rudder trim actuator, M27126. These are the tasks:
 - Rudder Trim Actuator Removal, AMM TASK 27-21-07-000-801
 - Rudder Trim Actuator Installation, AMM TASK 27-21-07-400-801
- (a) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

806. Aileron/Rudder Trim Module Manual Trim Cancel Switch Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10806.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.

EFFECTIVITY
ARO ALL

27-21 TASKS 805-806

D633W103-ARO

Page 218
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
- (b) If the maintenance message shows on the ground test display, then do these steps below.
 - 1) Push the MANUAL TRIM CANCEL switch on the aisle stand.
 - a) If the rudder trim indicator shows less than or equal to 0.2 unit on either directions, no action is required.
 - b) If the rudder trim indicator shows more than 0.2 unit on either directions, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Do this check of the MANUAL TRIM CANCEL switch:
 - (a) Open this circuit breaker and attach safety tag on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR

- (b) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Remove the aileron/rudder trim module, M27036, from the control stand. To remove it, do this task: Rudder and Aileron Trim Module - Removal, AMM TASK 27-21-08-000-801.
 - (d) Do these checks at connector DM27036B on the aileron/rudder trim module.
 - 1) Make sure there is not continuity from pin 3 to pin 4.
 - 2) Make sure there is not continuity from pin 3 to pin 5.
 - 3) Make sure there is continuity from pin 4 to pin 5.
 - 4) Push and hold the MANUAL TRIM CANCEL switch.
 - a) Make sure there is not continuity from pin 3 to pin 4.
 - b) Make sure there is not continuity from pin 4 to pin 5.
 - c) Make sure there is continuity from pin 3 to pin 5.
 - 5) Release the MANUAL TRIM CANCEL switch.
 - (e) If you found a problem with the MANUAL TRIM CANCEL switch, then do these steps:
 - 1) Install a new aileron/rudder trim module, M27036. To install it, do this task: Rudder and Aileron Trim Module - Installation, AMM TASK 27-21-08-400-801.
 - 2) Open this circuit breaker and attach safety tag on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR

EFFECTIVITY
ARO ALL

27-21 TASK 806

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 219
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Remove the safety tag and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
B	8	CBB8-L	RUD TRIM ACTR (L)

- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you did not find a problem with the MANUAL TRIM CANCEL switch, then continue.
- (2) Do this check of the switch wiring:
- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E5-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these contacts of connector DM27121AA at the E1-5 shelf and connector DM27036B for the MANUAL TRIM CANCEL switch (WDM 27-21-15):

DM27121AA	DM27036B
pin B2	pin 3
pin C2	pin 5
pin C3	pin 4

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-install the aileron/rudder trim module, M27036. To install it, do this task: Rudder and Aileron Trim Module - Installation, AMM TASK 27-21-08-400-801.

EFFECTIVITY
ARO ALL

27-21 TASK 806

D633W103-ARO

Page 220
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Remove the safety tag and close this circuit breaker on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (3) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-install the aileron/rudder trim module, M27036. To install it, do this task: Rudder and Aileron Trim Module - Installation, AMM TASK 27-21-08-400-801.
- (b) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Make sure that this circuit breaker is closed on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR

EFFECTIVITY
ARO ALL

27-21 TASK 806

D633W103-ARO

Page 221
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

807. Rudder Power Control Unit (Lower) Ram Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11402.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27009A from the lower rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27221AC at the E5-2 shelf and connector DM27009A at the rudder PCU (WDM 27-21-13):

DM27221AC

pin K2 pin 7
pin K1 pin 19

DM27009A

pin 7
pin 19

EFFECTIVITY
ARO ALL

27-21 TASKS 806-807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 222
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Check for shorts to ground for pins 7 and 19.
- 2) Check for shorts between pins 7 and 19.
- 3) Check for shorts between pin 7 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
- 4) Check for shorts between pin 19 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
- (e) Disconnect connector DM27007B.
 - 1) Check for shorts between pin 7 and DM27007B pins 2, 3, 5 and 6.
 - 2) Check for shorts between pin 19 and DM27007B pins 2, 3, 5 and 6.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27009A to the lower rudder PCU.
 - 3) Re-connect connector DM27007B.
 - 4) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-R, M27221.
 - (a) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-21 TASK 807

D633W103-ARO

Page 223
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the lower rudder PCU, M27009. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message still shows on the ground test display, then:
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
 - <1> If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

808. Rudder Power Control Unit (Lower) Ram Transducer Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11405.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-21 TASKS 807-808

D633W103-ARO

Page 224
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this task: Rudder Adjustment (Rigging), AMM TASK 27-21-00-800-801.
 - (a) If the Rudder Alignment procedure on the MAT passed, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
 - (b) If the Rudder Alignment procedure on the MAT did not pass, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27009A from the lower rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27221AC at the E5-2 shelf and connector DM27009A at the rudder PCU (WDM 27-21-13):

DM27221AC	DM27009A
pin K2	pin 7
pin K1	pin 19

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27009A to the lower rudder PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 225
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.

- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27009A to the lower rudder PCU.
- (3) Install a new ACE-R, M27221.
- (a) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-21 TASK 808

D633W103-ARO

Page 226
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the lower rudder power control unit (PCU), M27009. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

809. Rudder Power Control Units Have Multiple Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11406.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do a wiring check for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

810. Rudder Power Control Unit (Lower) EHV Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11409.

EFFECTIVITY
ARO ALL

27-21 TASKS 808-810

D633W103-ARO

Page 227
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27009A from the lower rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27221AC at the E5-2 and connector DM27009A at the rudder PCU (WDM 27-21-13):

NOTE: Check effectivity of the Wiring Diagram Manual (WDM) for the particular pin to pin check table to use.

DM27221AC	DM27009A
pin J3	pin 3
pin J4	pin 11

DM27221AC	DM27009A
pin J4	pin 3
pin J3	pin 11

- 1) Check for shorts to ground for pins 3 and 11.
- 2) Check for shorts between pins 3 and 11.
- 3) Check for shorts between pin 3 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17, 18 and 19.

EFFECTIVITY
ARO ALL

27-21 TASK 810

D633W103-ARO

Page 228
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Check for shorts between pin 11 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17, 18 and 19.
- (e) Disconnect connector DM27007B.
 - 1) Check for shorts between pin 3 and DM27007B pins 2, 3, 5 and 6.
 - 2) Check for shorts between pin 11 and DM27007B pins 2, 3, 5 and 6.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27009A to the lower rudder PCU.
 - 3) Re-connect connector DM27007B.
 - 4) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-21 TASK 810

D633W103-ARO

Page 229
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the lower rudder PCU, M27009. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

811. Rudder Power Control Unit (Lower) Delta Pressure Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11412.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-21 TASKS 810-811

D633W103-ARO

Page 230
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27009A from the lower rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27221AC at the E5-2 shelf and connector DM27009A at the rudder PCU (WDM 27-21-13)

DM27221AC

pin F1 pin 5
pin G1 pin 15

DM27009A

- 1) Check for shorts to ground for pins 5 and 15.
 - 2) Check for shorts between pins 5 and 15.
 - 3) Check for shorts between pin 5 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
 - 4) Check for shorts between pin 15 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
- (e) Disconnect connector DM27007B.
- 1) Check for shorts between pin 5 and DM27007B pins 2, 3, 5 and 6.
 - 2) Check for shorts between pin 15 and DM27007B pins 2, 3, 5 and 6.
- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27009A to the lower rudder PCU.
 - 3) Re-connect connector DM27007B.
 - 4) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU

EFFECTIVITY
ARO ALL

27-21 TASK 811



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 7) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-21 TASK 811

D633W103-ARO

Page 232
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the lower rudder PCU, M27009. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

812. Rudder Power Control Unit (Lower) Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11415.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the excitation and ground wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

EFFECTIVITY
ARO ALL

27-21 TASKS 811-812

D633W103-ARO

Page 233
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Disconnect connector DM27009A from the lower rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27221AC at the E5-2 shelf and connector DM27009A at the rudder PCU (WDM 27-21-13):

DM27221AC	DM27009A
pin K3	pin 12
pin K4	pin 13
pin J1	pin 18

- 1) Check for shorts to ground for pins 12, 13 and 18..
 - 2) Check for shorts between pins 12, 13 and 18.
 - 3) Check for shorts between pin 12 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 18.
 - 4) Check for shorts between pin 13 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 18.
 - 5) Check for shorts between pin 18 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 18.
- (e) Disconnect connector DM27007B.
 - 1) Check for shorts between pin 12 and DM27007B pins 2, 3, 5 and 6.
 - 2) Check for shorts between pin 13 and DM27007B pins 2, 3, 5 and 6.
 - 3) Check for shorts between pin 18 and DM27007B pins 2, 3, 5 and 6,
 - (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27009A to the lower rudder PCU.
 - 3) Re-connect connector DM27007B.
 - 4) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If you do not find a problem with the wiring, then continue.
 - (h) Re-connect connector DM27009A to the lower rudder PCU.
- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 812

D633W103-ARO

Page 234
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the lower rudder PCU, M27009. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

813. Pedal Position Transducer (Left 1) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12200.

EFFECTIVITY
ARO ALL

27-21 TASKS 812-813

D633W103-ARO

Page 235
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect the connector DM27137 for the left 1 rudder pedal position transducer.
- (d) Do a wiring check between these contacts of connector DM27121AA at the E1-5 shelf and connector DM27137 at the rudder pedal position transducer (WDM 27-21-12):

DM27121AA	DM27137
pin B5	pin 9
pin C5	pin 8
pin A6	pin 5
pin C6	pin 1
pin B6	pin 6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27137 for the rudder pedal position transducer.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 813

D633W103-ARO

Page 236
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Replace the left 1 rudder pedal position transducer, M27137. These are the tasks:
- Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801
 - Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801
- (a) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.

EFFECTIVITY
ARO ALL

27-21 TASK 813

D633W103-ARO

Page 237
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

814. Pedal Position Signals Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-12204, 27-12205.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
- (a) If one or more maintenance messages show on the ground test display, then do these steps:
- 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
- (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.

————— END OF TASK —————

815. Lower Rudder PCU Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16018.

B. Initial Evaluation

NOTE: This message can only occur when you do the Rudder Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: "select NO if you cannot align them". If you select YES, then this maintenance message will not show as a failure.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Alignment.
- NOTE: AMM 27-21-11/501 contains information that will help you do this ground test.
- (a) If you could adjust the rudder correctly during the ground test, then you corrected the fault.
- (b) If you could not adjust the rudder correctly during the ground test, then continue.
- (2) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the lower rudder power control unit (PCU), M27009. These are the tasks:

EFFECTIVITY
ARO ALL

27-21 TASKS 813-815

D633W103-ARO

Page 238
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
- Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

816. Left 1 Pedal Position Transducer Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16019.

B. Initial Evaluation

NOTE: This message can only occur when you do the Pedal Position ground test on the MAT. It will occur if the ground test is failed. IF the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Adjust left 1 pedal position transducer. To adjust it, do this task: Pedal Position Transducer Adjustment (Rigging), AMM TASK 27-21-00-800-804.
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Pedal Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:
- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect the connector DM27137 for the left 1 rudder pedal position transducer.
- (d) Do a wiring check between these contacts of connector DM27121AA at the E1-5 shelf and connector DM27137 at the rudder pedal position transducer (WDM 27-21-12):

EFFECTIVITY
ARO ALL

27-21 TASKS 815-816

D633W103-ARO

Page 239
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27121AA

pin A6 pin 5
pin B6 pin 6

DM27137

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27137 for the rudder pedal position transducer.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27137 to the left 1 rudder pedal position transducer.
- (3) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Pedal Position.

EFFECTIVITY
ARO ALL

27-21 TASK 816

D633W103-ARO

Page 240
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left 1 pedal position transducer, M27137. These are the tasks:
 - Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801
 - Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Pedal Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

817. Lower Rudder PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15031.

B. Initial Evaluation

- (1) Remove the safety tag and close this circuit breaker on the right Power Supply Assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU

- (2) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Open this circuit breaker and install safety tag on the right Power Supply Assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- (c) Remove the PSA-R, M24201, from the E5-1 shelf. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (d) Remove connector DM27007B from the upper rudder power control unit (PCU), M27007.
- (e) Remove connector DM27009A from the lower rudder PCU, M27009.
- (f) Do a wiring check between these pins of connector DM27007B for the upper PCU and connector DM24201AD at the PSA-R (WDM 27-21-13):

EFFECTIVITY
ARO ALL

27-21 TASKS 816-817

D633W103-ARO

Page 241
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27007B

pin 3
pin 5

DM24201AD

pin 29
pin 29

- (g) Do a wiring check between these pins of connector DM27009A for the lower PCU and connector DM24201AD at the PSA-R (WDM 27-21-13):

DM27009A

pin 16

DM24201AD

pin 29

- (h) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27007B to the upper PCU, M27007.
 - 3) Re-connect connector DM27009A to the lower PCU, M27009.
 - 4) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 5) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- 6) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-R, M24201:
 - a) D8, BAT INTLK
 - 7) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (i) If you do not find a problem with the wiring, then continue.
- (2) Replace the PSA-R, M24201. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-21 TASK 817

D633W103-ARO

Page 242
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) Replace the lower rudder PCU, M27009. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the upper rudder PCU, M27007. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

818. Rudder Power Control Unit (Upper) Ram Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11400.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
 - (a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

EFFECTIVITY
ARO ALL

27-21 TASKS 817-818

D633W103-ARO

Page 243
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27007A from the upper rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27321AC at the E2-5 shelf and connector DM27007A at the rudder PCU (WDM 27-21-11):

DM27321AC	DM27007A
pin K2	pin 7
pin K1	pin 19

- 1) Check for shorts to ground for pins 7 and 19.
- 2) Check for shorts between pins 7 and 19.
- 3) Check for shorts between pin 7 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
- 4) Check for shorts between pin 19 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
- (e) Disconnect connector DM27008B.
 - 1) Check for shorts between pin 7 and DM27008B pins 2, 3, 5 and 6.
 - 2) Check for shorts between pin 19 and DM27008B pins 2, 3, 5 and 6.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27007A to the upper rudder PCU.
 - 3) Re-connect connector DM27008B.
 - 4) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 818

D633W103-ARO

Page 244
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the upper rudder PCU, M27007 . These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message still shows on the ground test display, then:
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
 - <1> If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-21 TASK 818

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 245
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

819. Rudder Power Control Unit (Middle) Ram Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11401.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27008A from the middle rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27121AC at the E1-5 shelf and connector DM27008A at the rudder PCU (WDM 27-21-12):

DM27121AC	DM27008A
pin K2	pin 7
pin K1	pin 19

- 1) Check for shorts to ground for pins 7 and 19.
- 2) Check for shorts between pins 7 and 19.
- 3) Check for shorts between pin 7 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.
- 4) Check for shorts between pin 19 and pins 3, 5, 8, 9, 11, 12, 13, 15, 16, 17 and 18.

EFFECTIVITY
ARO ALL

27-21 TASK 819

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 246
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) Disconnect connector DM27009B.
 - 1) Check for shorts between pin 7 and DM27009B pins 2, 3, 5 and 6.
 - 2) Check for shorts between pin 19 and DM27009B pins 2, 3, 5 and 6.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27008A to the middle rudder PCU.
 - 3) Re-connect connector DM27009B.
 - 4) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-21 TASK 819

D633W103-ARO

Page 247
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the middle rudder PCU, M27008. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message still shows on the ground test display, then:
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
 - <1> If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

820. Rudder Power Control Unit (Upper) Ram Transducer Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11403.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

EFFECTIVITY
ARO ALL

27-21 TASKS 819-820

D633W103-ARO

Page 248
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Do this task: Rudder Adjustment (Rigging), AMM TASK 27-21-00-800-801.
 - (a) If the Rudder Alignment procedure on the MAT passed, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
 - (b) If the Rudder Alignment procedure on the MAT did not pass, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27007A from the upper rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27321AC at the E2-5 shelf and connector DM27007A at the rudder PCU (WDM 27-21-11):

DM27321AC	DM27007A
pin K2	pin 7
pin K1	pin 19

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27007A to the upper rudder PCU.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU

EFFECTIVITY
ARO ALL

27-21 TASK 820

D633W103-ARO

Page 249
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27007A to the upper rudder PCU.
- (3) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the upper rudder power control unit (PCU), M27007. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801

EFFECTIVITY
ARO ALL

27-21 TASK 820

D633W103-ARO

Page 250
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

821. Rudder Power Control Unit (Middle) Ram Transducer Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11404.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this task: Rudder Adjustment (Rigging), AMM TASK 27-21-00-800-801.
 - (a) If the Rudder Alignment procedure on the MAT passed, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
 - (b) If the Rudder Alignment procedure on the MAT did not pass, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-21 TASKS 820-821

D633W103-ARO

Page 251
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27008A from the middle rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27121AC at the E1-5 shelf and connector DM27008A at the rudder PCU (WDM 27-21-12):

DM27121AC	DM27008A
pin K2	pin 7
pin K1	pin 19

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27008A to the middle rudder PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27008A to the middle rudder PCU.
- (3) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR

EFFECTIVITY
ARO ALL

27-21 TASK 821

D633W103-ARO

Page 252
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the middle rudder power control unit (PCU), M27008. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

822. Rudder Power Control Unit (Upper) EHV Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11407.

EFFECTIVITY
ARO ALL

27-21 TASKS 821-822

D633W103-ARO

Page 253
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27007A from the upper rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27321AC at the E2-5 and connector DM27007A at the rudder PCU (WDM 27-21-11):

NOTE: Check effectivity of the WDM for the particular pin to pin check table to use.

DM27321AC	DM27007A
pin J3	pin 3
pin J4	pin 11

DM27321AC	DM27007A
pin J4	pin 3
pin J3	pin 11

- 1) Check for shorts to ground for pins 3 and 11.
- 2) Check for shorts between pins 3 and 11.
- 3) Check for shorts between pin 3 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17 and 18.

EFFECTIVITY
ARO ALL

27-21 TASK 822

D633W103-ARO

Page 254
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Check for shorts between pin 11 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17 and 18.
- (e) Disconnect connector DM27008B.
 - 1) Check for shorts between pin 3 and DM27008B pins 2, 3, 5 and 6.
 - 2) Check for shorts between pin 11 and DM27008B pins 2, 3, 5 and 6.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27007A to the upper rudder PCU.
 - 3) Re-connect connector DM27008B.
 - 4) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-21 TASK 822

D633W103-ARO

Page 255
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the upper rudder PCU, M27007. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

823. Rudder Power Control Unit (Middle) EHV Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11408.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-21 TASKS 822-823

D633W103-ARO

Page 256
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27008A from the middle rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27121AC at the E1-5 and connector DM27008A at the rudder PCU (WDM 27-21-12):

NOTE: Check effectivity of the WDM for the particular pin to pin check table to use.

DM27121AC	DM27008A
pin J3	pin 3
pin J4	pin 11

DM27121AC	DM27008A
pin J4	pin 3
pin J3	pin 11

- 1) Check for shorts to ground for pins 3 and 11.
 - 2) Check for shorts between pins 3 and 11.
 - 3) Check for shorts between pin 3 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17, 18 and 19.
 - 4) Check for shorts between pin 11 and pins 5, 7, 8, 9, 12, 13, 15, 16, 17, 18 and 19.
- (e) Disconnect connector DM27009B.
- 1) Check for shorts between pin 3 and DM27009B pins 2, 3, 5 and 6.
 - 2) Check for shorts between pin 11 and DM27009B pins 2, 3, 5 and 6.
- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27008A to the middle rudder PCU.
 - 3) Re-connect connector DM27009B.
 - 4) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 823

D633W103-ARO

Page 257
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.

- a) If the maintenance message does not show on the ground test display, you corrected the fault.

- (g) If you do not find a problem with the wiring, then continue.

- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-21 TASK 823

D633W103-ARO

Page 258
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
 - (4) Replace the middle rudder PCU, M27008. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- NOTE:** Replacing the rudder PCU might clear this fault.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

824. Rudder Power Control Unit (Upper) Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11413.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the excitation and ground wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

EFFECTIVITY
ARO ALL

27-21 TASKS 823-824

D633W103-ARO

Page 259
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27007A from the upper rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27321AC at the E2-5 shelf and connector DM27007A at the rudder PCU (WDM 27-21-11):

DM27321AC	DM27007A
pin K3	pin 12
pin K4	pin 13
pin J1	pin 18

- 1) Check for shorts to ground for pins 12, 13 and 18.
- 2) Check for shorts between pins 12, 13 and 18.
- 3) Check for shorts between pin 12 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
- 4) Check for shorts between pin 13 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
- 5) Check for shorts between pin 18 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
- (e) Disconnect connector DM27008B.
 - 1) Check for shorts between pin 12 and DM27008B pins 2, 3, 5 and 6.
 - 2) Check for shorts between pin 13 and DM27008B pins 2, 3, 5 and 6.
 - 3) Check for shorts between pin 18 and DM27008B pins 2, 3, 5 and 6.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27007A to the upper rudder PCU.
 - 3) Re-connect connector DM27008B.
 - 4) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (h) Re-connect connector DM27007A to the upper rudder PCU.

EFFECTIVITY
ARO ALL

27-21 TASK 824

D633W103-ARO

Page 260
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the upper rudder PCU, M27007. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

825. Rudder Power Control Unit (Middle) Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11414.

EFFECTIVITY
ARO ALL

27-21 TASKS 824-825

D633W103-ARO

Page 261
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the excitation and ground wiring:
 - (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101 on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf.
- (c) Disconnect connector DM27008A from the middle rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27121AC at the E1-5 shelf and connector DM27008A at the rudder PCU (WDM 27-21-12):

DM27121AC	DM27008A
pin K3	pin 12
pin K4	pin 13
pin J1	pin 18

- 1) Check for shorts to ground for pins 12, 13 and 18.
 - 2) Check for shorts between pins 12, 13 and 18.
 - 3) Check for shorts between pin 12 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
 - 4) Check for shorts between pin 13 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
 - 5) Check for shorts between pin 18 and pins 3, 5, 7, 8, 9, 11, 15, 16, 17 and 19.
- (e) Disconnect connector DM27009B.
 - 1) Check for shorts between pin 12 and DM27009B pins 2, 3, 5 and 6.
 - 2) Check for shorts between pin 13 and DM27009B pins 2, 3, 5 and 6.

EFFECTIVITY
ARO ALL

27-21 TASK 825

D633W103-ARO

Page 262
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Check for shorts between pin 18 and DM27009B pins 2, 3, 5 and 6.
- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27008A to the middle rudder PCU.
 - 3) Re-connect connector DM27009B.
 - 4) Re-install ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (h) Re-connect connector DM27008A to the middle rudder PCU.
- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-21 TASK 825

D633W103-ARO

Page 263
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the middle rudder PCU, M27008. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

826. Rudder Surface Delta Pressure Signal Difference Out of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10417.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Adjust the upper rudder power control unit (PCU), M27007. To adjust it, do this task: Left and Right Rudder Control Mechanisms Adjustment (Rigging), AMM TASK 27-21-00-800-803.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-21 TASKS 825-826

D633W103-ARO

Page 264
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message shows on the ground test display, then continue.
- (2) Adjust the middle rudder PCU, M27008. To adjust it, do this task: Left and Right Rudder Control Mechanisms Adjustment (Rigging), AMM TASK 27-21-00-800-803.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (3) Adjust the lower rudder PCU, M27009. To adjust it, do this task: Left and Right Rudder Control Mechanisms Adjustment (Rigging), AMM TASK 27-21-00-800-803.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (4) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (6) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (7) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (8) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (9) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.

EFFECTIVITY
ARO ALL

27-21 TASK 826

D633W103-ARO

Page 265
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (10) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (11) Replace the upper rudder PCU, M27007. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (12) Replace the middle rudder PCU, M27008. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (13) Replace the lower rudder PCU, M27009. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (14) Do this check of the wiring between the ACE-C and the upper rudder PCU:



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27007A from the upper rudder PCU, M27007.
- (d) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27007A at the upper rudder PCU, M27007 (WDM 27-21-11):

DM27321AC	DM27007A
pin F1	pin 5
pin G1	pin 15
pin K1	pin 19
pin K2	pin 7

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27007A.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27007A.

EFFECTIVITY
ARO ALL

27-21 TASK 826

D633W103-ARO

Page 267
May 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (h) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (i) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (15) Do this check of the wiring from the ACE-L1 to the middle rudder PCU:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27008A from the middle rudder PCU, M27008.
- (d) Do a wiring check between these pins of connector DM27121AC at the E1-5 shelf and connector DM27008A at the middle rudder PCU, M27008 (WDM 27-21-12):

DM27121AC	DM27008A
pin F1	pin 5
pin G1	pin 15
pin K1	pin 19
pin K2	pin 7

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27008A.
 - 3) Re-install ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 826

D633W103-ARO

Page 268
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27008A.
- (h) Re-install ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (i) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (16) Do this check of the wiring from the ACE-R to the lower rudder PCU:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-21 TASK 826

D633W103-ARO

Page 269
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27009A from the lower rudder PCU, M27009.
- (d) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27009A at the lower rudder PCU, M27009 (WDM 27-21-13):

DM27221AC		DM27009A	
pin F1	.....	pin 5	
pin G1	.....	pin 15	
pin K1	.....	pin 19	
pin K2	.....	pin 7	

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27009A.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

827. Pressure Signals from Gust Suppression Pressure Transducers Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17018.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Gust Suppression Pressure Transducers.
 - (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.

EFFECTIVITY
ARO ALL

27-21 TASKS 826-827

D633W103-ARO

Page 270
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If no maintenance message shows on the ground test display, then this may be an intermittent fault.
- 1) If this intermittent fault occurs on the same airplane more than one time, do the Sensor Fault Isolation Procedure.

C. Sensor Fault Isolation Procedure



DO NOT EXCEED 4 PSI ACROSS THE TRANSDUCER DURING THE TEST. IF YOU DO, POSSIBLE DAMAGE MAY OCCUR TO THE TRANSDUCER.

- (1) Do this test if the fault described above occurs on the same airplane more than one time:
- NOTE: This test will isolate the failed gust suppression pressure sensor. Use the following table to convert from psi (pound/square-inch) to other pressure units:
- 1 psi = 2.036 inches of mercury
 - 1 psi = 68.948 millibar
 - 1 psi = 6.8948 kilopascal
 - 1 psi = 0.068 atmosphere
- (a) To perform this test properly, you must monitor the pressure measured by the gust suppression upper port on page 1 of the flight controls maintenance page on the MFD. To show the page, do this task: Showing a Maintenance Page, AMM TASK 31-61-00-800-804.
- (b) Do a check for pneumatic leaks from the pneumatic tubes:
- 1) Connect the vacuum port of the air data test set, RVSM compatible, STD-883 to the upper left side static port of the vertical fin.
 - 2) Apply -1.9 to -2.1 psi to the upper left side port and wait 2 minutes.
 - 3) Monitor the pressure measured by the gust suppression upper port on page 1 of the flight controls maintenance page.
- NOTE: The gust suppression differential pressure is shown in psi. If the signal is invalid, an X will show next to the indication.
- The maintenance page will show a positive value if the vacuum is applied to the left side port and a negative value if the vacuum is applied to the right side port.
- a) If the pressure displayed on the maintenance page is not within 0.2 psi of the vacuum applied by the test equipment, the pressure sensor is faulty and should be replaced. These are the tasks:
 - Gust Suppression Pressure Transducer Removal, AMM TASK 27-21-10-000-801
 - Gust Suppression Pressure Transducer Installation, AMM TASK 27-21-10-400-801
 - b) There is a problem with the integrity of the pneumatic tubes or joints if the vacuum displayed by the test equipment drops by more than 0.1 psi during the 2 minute period that the vacuum is applied.
 - c) If the pressure displayed on the maintenance page is within 0.2 psi of the vacuum applied by the test equipment, then there was an intermittent fault.
- 4) Using the test equipment, slowly vent the vacuum from the static port.

EFFECTIVITY
ARO ALL

27-21 TASK 827

D633W103-ARO

Page 271
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Disconnect the vacuum port of the air data test set, RVSM compatible, STD-883 from the upper left side static port of the vertical fin.
- (c) Check the other gust suppression ports using the same method.
- (2) Do this task: Remove Electrical Power, AMM TASK 24-22-00-860-806.

————— **END OF TASK** —————

828. Rudder Trim Actuator Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15036.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do these steps:
 - (a) Close this circuit breaker on the left power supply assembly (PSA-L), M24101:
 - 1) B8, RUD TRIM ACTR
 - (b) If the circuit breaker opens when you try to close it, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Open.
- (2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - (a) If the maintenance message shows on the ground test display, then do this check:
 - 1) If the circuit breaker is open, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Open.
 - 2) If the circuit breaker stays closed, then do this procedure below: Fault Isolation Procedure - Circuit Breaker closed.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure - Circuit Breaker Closed

- (1) Replace the PSA-L, M24101. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

D. Fault Isolation Procedure - Circuit Breaker Open

- (1) Do this check of the power wiring:
 - (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

EFFECTIVITY
ARO ALL

27-21 TASKS 827-828

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 272
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- (c) Remove the PSA-L, M24101, from the E1-6 shelf. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (d) Disconnect connector DM27126A from the rudder trim actuator, M27126.
- (e) Do a wiring check between these pins of connector DM27126A for the rudder trim actuator and connector DM24101AD at the PSA-L (WDM 27-21-15):

DM27126A	DM24101AD
pin 1	pin 36

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27126A to the rudder trim actuator, M27126.
 - 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- 5) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Replace the PSA-L, M24101. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-21 TASK 828

D633W103-ARO

Page 273
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the rudder trim actuator, M27126. These are the tasks:
 - Rudder Trim Actuator Removal, AMM TASK 27-21-07-000-801
 - Rudder Trim Actuator Installation, AMM TASK 27-21-07-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

829. Lower Rudder PCU Bypass Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10405.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
 - (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- (c) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Disconnect connector DM27009A from the lower rudder power control unit (PCU).
- (e) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (f) Do a wiring check between these contacts of connector DM27221AC for ACE-R and connector DM27009A at the rudder PCU (WDM 27-21-13):

EFFECTIVITY
ARO ALL

27-21 TASKS 828-829

D633W103-ARO

Page 274
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27221AC

pin F2

DM27009A

pin 17

- (g) Do a wiring check between these pins of connector DM24201AD for the PSA-R and connector DM27009A at the rudder PCU (WDM 27-21-13):

DM24201AD

pin 29

DM27009A

pin 16

- (h) Do a wiring check between these pins of connector DM27221AB for the ACE-R and connector DM24201AD at the PSA-R (WDM 27-21-13):

DM27221AB

pin A5

DM24201AD

pin 30

- (i) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 3) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 4) Re-connect the connector DM27009A to the lower rudder PCU.
- 5) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- 6) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- 7) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- 8) If the maintenance message does not show on the ground test display, you corrected the fault.

- (j) If you do not find a problem with the wiring, then continue.

- (2) Install a new ACE-R, M27221 (AMM TASK 27-02-02-400-803).

- (a) Re-connect the connector DM27009A to the lower rudder PCU.
- (b) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.

EFFECTIVITY
ARO ALL

27-21 TASK 829

D633W103-ARO

Page 275
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Close this circuit breaker on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- (d) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- (f) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-R, M24201. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the lower rudder PCU, M27009. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-21 TASK 829

D633W103-ARO

Page 276
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

830. Lower Rudder PCU Pressure Reducer Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10411.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Do a check for 28 VDC from terminal UB61 of terminal block TB1501 at the E1-5 shelf to structure ground (WDM 27-21-12).
 - (b) If there is not 28 VDC at terminal UB61 of terminal block TB1501, then do these steps:
 - 1) Remove the left power supply assembly (PSA-L), M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of terminal block TB1501 at the E1-5 shelf and the connector DM24101AD at the E1-6 shelf (WDM 27-21-12):

TB1501	DM24101AD
term UB61	pin 29
 - (2) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (3) If you do not find a problem with the wiring, then continue.
 - (4) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
 - (5) If there is 28 VDC at terminal UB61 of terminal block TB1501, then continue.
- (2) Do this check of the control wiring for the pressure reducer solenoid-operated valve (SOV):

EFFECTIVITY
ARO ALL

27-21 TASK 830

D633W103-ARO

Page 277
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect the connector DM27009B from the lower rudder power control unit (PCU).
- (d) Do a wiring check between these pins of connector DM27121AC for the ACE-L1 and connector DM27009B at the PCU (WDM 27-21-12):

DM27121AC	DM27009B
pin G4	pin 6

- (e) Do a wiring check between these pins of terminal block TB1501 and connector DM27009B at the PCU (WDM 27-21-12):

TB1501	DM27009B
term UB61	pin 5

- (f) Do a wiring check between pin A5 of connector DM27121AB and structure ground (WDM 27-21-12).
- (g) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect the connector DM27009B to the PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

EFFECTIVITY
ARO ALL

27-21 TASK 830

D633W103-ARO

Page 278
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (h) If you do not find a problem with the wiring, then continue.
- (3) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect the connector DM27009B to the PCU.
 - (b) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the lower rudder PCU, M27009. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-21 TASK 830

D633W103-ARO

Page 279
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

831. Lower Gust Suppression Transducer Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16046.

B. Initial Evaluation

NOTE: This message can only occur when you do the Gust Suppression Pressure Transducers ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Do this check of the gust suppression pressure transducer wiring:
- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27038 from the lower gust suppression pressure transducer, M27038.
- (d) Do a wiring check between these pins of connector DM27121AB for the ACE-L1 and connector DM27038 for the transducer (WDM 27-21-14):

DM27121AB	DM27038
pin F8	pin 2
pin F9	pin 3
pin F10	pin 7
pin G8	pin 5
pin G9	pin 4

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27038 to the gust suppression pressure transducer, M27038.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 831

D633W103-ARO

Page 280
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Gust Suppression Pressure Transducers.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect connector DM27038 to the gust suppression pressure transducer, M27038.
- (b) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Gust Suppression Pressure Transducers.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the lower gust suppression pressure transducer, M27038. These are the tasks:
- Gust Suppression Pressure Transducer Removal, AMM TASK 27-21-10-000-801
 - Gust Suppression Pressure Transducer Installation, AMM TASK 27-21-10-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Gust Suppression Pressure Transducers.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-21 TASK 831

D633W103-ARO

Page 281
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

832. Rudder Trim Actuator Engage Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10801.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the rudder trim actuator, M27126. These are the tasks:
 - Rudder Trim Actuator Removal, AMM TASK 27-21-07-000-801
 - Rudder Trim Actuator Installation, AMM TASK 27-21-07-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-21 TASK 832

D633W103-ARO

Page 282
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (6) Do this check of the command and engage-1 wiring:
- (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27126B from the rudder trim actuator, M27126.
- (d) Do a wiring check between these pins of connector DM27121AA at the E1-5 shelf and connector DM27126B at the rudder trim actuator, M27126 (WDM 27-21-15):

DM27121AA		DM27126B	
pin A1	.....	pin 11	
pin A2	.....	pin 12	
pin A3	.....	pin 14	
pin B3	.....	pin 13	

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27126B.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-21 TASK 832

D633W103-ARO

Page 283
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27126B.
- (h) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (i) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (7) Do this check of the engage-2 wiring:
 - (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27126A from the rudder trim actuator, M27126.
- (d) Do a wiring check between these pins of connector DM27221AA at the E5-2 shelf and connector DM27126A at the rudder trim actuator, M27126 (WDM 27-21-15):

DM27221AA	DM27126A
pin A3	pin 14
pin B3	pin 13
pin B1	pin 5
pin C1	pin 15

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27126A.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 832

D633W103-ARO

Page 284
May 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.

- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- f) If you do not find a problem with the wiring, then continue.
- g) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- h) Close these circuit breakers on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (8) Do this check of the power and ground wiring:
- (a) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Disconnect connector DM27126A from the rudder trim actuator, M27126.
 - (c) Do a wiring check between these pins of connector DM24101AD at the E1-5 shelf and connector DM27126A at the rudder trim actuator, M27126 (WDM 27-21-15):

DM24101AD	DM27126A
pin 35	pin 8
pin 36	pin 1

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27126A.
 - 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.

EFFECTIVITY
ARO ALL

27-21 TASK 832

D633W103-ARO

Page 285
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27126A.
- (9) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

833. Rudder Surface Delta Pressure Signal Difference Out of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10416.

B. Initial Evaluation

- (1) Make sure that the primary flight computer (PFC) is in NORMAL mode.
- (2) Pressurize all the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (a) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (3) Push and hold the Rudder Pedal fully left.
 - (a) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (4) Push and hold the rudder pedal fully right.
 - (a) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (5) If the MAT shows ACTIVE for the maintenance message during the steps above, then do the Fault Isolation Procedure below.
- (6) If the MAT shows NOT ACTIVE for the maintenance message during all the steps above, then there was an intermittent fault.
 - (a) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Alignment.

NOTE: This ground test adjusts (rigs) the Rudder. AMM 27-21-00/501 contains information that will help you do this ground test.

 - (a) Make sure that the primary flight computer (PFC) is in NORMAL mode.
 - (b) Pressurize all the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

EFFECTIVITY
ARO ALL

27-21 TASKS 832-833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 286
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (c) Push and hold the Rudder Pedal fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (d) Push and hold the rudder pedal fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (e) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (f) If the maintenance message shows on the MAT, then continue.
- (2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the maintenance message index.
 - 2) Do the specified fault isolation task.
 - (b) If no maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Pressurize all the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (b) Push and hold the Rudder Pedal fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (c) Push and hold the rudder pedal fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (e) If the maintenance message shows on the MAT, then continue.
- (5) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (6) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

EFFECTIVITY
ARO ALL

27-21 TASK 833

D633W103-ARO

Page 287
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Pressurize all the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (b) Push and hold the Rudder Pedal fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (c) Push and hold the rudder pedal fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (e) If the maintenance message shows on the MAT, then continue.
- (7) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (8) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Pressurize all the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (b) Push and hold the Rudder Pedal fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (c) Push and hold the rudder pedal fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (e) If the maintenance message shows on the MAT, then continue.
- (9) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-21 TASK 833

D633W103-ARO

Page 288
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (10) Replace the upper rudder power control unit (PCU), M27007. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) Pressurize all the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (b) Push and hold the Rudder Pedal fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (c) Push and hold the rudder pedal fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (e) If the maintenance message shows on the MAT, then continue.
- (11) Replace the middle rudder PCU, M27008. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) Pressurize all the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (b) Push and hold the Rudder Pedal fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (c) Push and hold the rudder pedal fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
 - (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (e) If the maintenance message shows on the MAT, then continue.
- (12) Replace the lower rudder PCU, M27009. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) Pressurize all the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.



777-200/300 FAULT ISOLATION MANUAL

- 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (b) Push and hold the Rudder Pedal fully left.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (c) Push and hold the rudder pedal fully right.
 - 1) After 1.5 minutes, look for the maintenance message on the Extended Maintenance, Existing Faults display.
- (d) If the maintenance message does not show on the MAT, you corrected the fault.
 - 1) Remove all hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

————— END OF TASK —————

834. Rudder Pedals Do Not Move Freely - Fault Isolation

A. Initial Evaluation

- (1) Operate Captain's rudder pedals and then the First Officer's rudder pedals several times.
 - (a) If the rudder pedals do not move freely, then do the Fault Isolation Procedure below.
 - (b) If the rudder pedals move freely, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) Do a check of rudder pedal adjustment and Travel Test. To check it, do this task: Rudder Pedal Adjustment and Travel Test, AMM TASK 27-21-00-700-805.
 - (a) If you find a problem, then do these steps.
 - 1) Examine these components, on the captain's rudder pedals, for damaged parts, loose parts, or for objects that prevent smooth movement. Replace or repair those components that have damage.
 - a) The rudder pedal jackshaft.
 - b) The rudder pedal control rod.
 - c) The rudder feel/centering mechanism.
 - d) The rudder pedal friction brake.
 - e) The pedal damper.
 - f) The rudder pedal position transducer.
 - g) The rudder pedal backdrive actuator.
 - 2) Do a check of rudder pedals Adjustment. To adjust it, do this task: Rudder Pedal Adjustment, AMM TASK 27-21-00-800-802.
 - 3) Operate Captain's rudder pedals several times.
 - 4) Operate First Officer's rudder pedals several times.
 - 5) If the rudder pedals move freely, you corrected the fault.
 - (b) If you do not find a problem, then continue.
- (2) Do a check of rudder pedals Adjustment. To adjust it, do this task: Rudder Pedal Adjustment, AMM TASK 27-21-00-800-802.
 - (a) Operate Captain's rudder pedals several times.
 - (b) Operate First Officer's rudder pedals several times.

EFFECTIVITY
ARO ALL

27-21 TASKS 833-834

D633W103-ARO

Page 290
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (c) If the rudder pedals move freely, you corrected the fault.

————— **END OF TASK** —————

835. Rudder Pedal Adjustment Crank Problems - Fault Isolation

A. Initial Evaluation

- (1) Turn the rudder pedal adjustment crank clockwise then counterclockwise.
 - (a) If the adjustment crank does not move freely, then do the Fault Isolation Procedure below.
 - (b) If the adjustment crank moves freely, there was an intermittent fault.

B. Fault Isolation Procedure

- (1) Examine the radius of the flex cable curvature for the rudder pedal adjustment crank.
 - (a) If the radius of the flex cable curvature is less than 5.0 inches, then do these steps:
 - 1) Adjust the radius of the flex cable curvature. To adjust it, do this task: Rudder Pedal Adjustment, AMM TASK 27-21-00-800-802.
 - 2) If the adjustment crank moves freely, you corrected the fault.
 - (b) If the radius of the flex cable curvature is greater than 5.0 inches, then continue.
- (2) Examine the rudder pedal jackshaft mechanism for unwanted material.
 - (a) If there is unwanted material in the jackshaft mechanism, then do these steps:
 - 1) Remove the housing for the jackshaft mechanism. To remove it, do this task: Rudder Pedal Adjustment Flex Shaft Removal, AMM TASK 27-21-02-000-802.
 - 2) Remove unwanted material from the jackshaft mechanism.
 - 3) Re-install the housing for the jackshaft mechanism. To install it, do this task: Rudder Pedal Adjustment Flex Shaft Installation, AMM TASK 27-21-02-400-802.
 - 4) If the adjustment crank moves freely, you corrected the fault.
 - 5) If the adjustment crank does not move freely, then continue.
 - (b) If there is no unwanted material in the rudder pedal jackshaft mechanism, then continue.
- (3) Replace the flex cable for the adjustment crank. These are the tasks:
 - Rudder Pedal Adjustment Flex Shaft Removal, AMM TASK 27-21-02-000-802
 - Rudder Pedal Adjustment Flex Shaft Installation, AMM TASK 27-21-02-400-802
 - (a) If the adjustment crank moves freely, you corrected the fault.
 - (b) If the adjustment crank does not move freely, then continue.
- (4) Replace the jackshaft mechanism. These are the tasks:
 - Rudder Pedal Adjustment Flex Shaft Removal, AMM TASK 27-21-02-000-802
 - Rudder Pedal Adjustment Flex Shaft Installation, AMM TASK 27-21-02-400-802
 - (a) If the adjustment crank moves freely, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-21 TASKS 834-835

D633W103-ARO

Page 291
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

836. Rudder Pedal Problems - Fault Isolation

A. Initial Evaluation

- (1) Turn the rudder pedal adjustment crank clockwise then counterclockwise.
 - (a) If the pedal does not move back and forward, then do the Fault Isolation Procedure below.
 - (b) If the pedal moves back and forward, there was an intermittent fault.

B. Fault Isolation Procedure

- (1) Replace the flex cable for the rudder pedal adjustment crank. These are the tasks:
 - Rudder Pedal Adjustment Flex Shaft Removal, AMM TASK 27-21-02-000-802
 - Rudder Pedal Adjustment Flex Shaft Installation, AMM TASK 27-21-02-400-802
 - (a) Turn the rudder pedal adjustment crank clockwise and counterclockwise.
 - (b) If the pedal moves back and forward, you corrected the fault.
 - (c) If the pedal does not move back and forward, then continue.
- (2) Replace the rudder pedal jackshaft mechanism. These are the tasks:
 - Rudder Pedal Adjustment Flex Shaft Removal, AMM TASK 27-21-02-000-802
 - Rudder Pedal Adjustment Flex Shaft Installation, AMM TASK 27-21-02-400-802
 - (a) Turn the rudder pedal adjustment crank clockwise and counterclockwise.
 - (b) If the pedal moves back and forward, you corrected the fault.

————— **END OF TASK** —————

837. Rudder Trim Indicator Light Problems - Fault Isolation

A. Initial Evaluation

- (1) Open and then close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

NOTE: Cycling this circuit breaker resets the rudder trim indicator. The rudder trim indicator has a software problem that makes the light go off.

- (2) If the rudder trim indicator light is off, then do the Fault Isolation Procedure below.
- (3) If the rudder trim indicator light is on, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Remove the rudder trim indicator, N27003.
 - (b) Do a check for 28V DC between pin 14 of connector DN27003 and structure ground (WDM 27-28-11).
 - (c) If there is not 28V DC at pin 14 of connector DN27003, then do these steps:
 - 1) Open the P110 left power management panel.
 - 2) Do a check for 28V DC at load terminal of circuit breaker C27633.
 - 3) If there is not 28V DC at the circuit breaker, then do these steps:

EFFECTIVITY
ARO ALL

27-21 TASKS 836-837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 292
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) Replace this circuit breaker:
(WDM 27-28-11)

Left Power Management Panel, P110

Row	Col	Number	Name
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- b) Re-install the rudder trim indicator, N27003.
c) If the rudder trim indicator light is on, you corrected the fault.
- 4) If there is 28V DC at the circuit breaker, then do these steps:
- a) Repair the wiring between pin 14 of connector DN27003 at the rudder trim indicator, N27003, and the load terminal circuit breaker, C27633 (WDM 27-28-11).
b) Re-install the rudder trim indicator, N27003.
c) If the rudder trim indicator light is on, you corrected the fault.
- 5) If there is 28V DC at pin 14 of connector DN27003, then continue.
- (2) Install a new the rudder trim indicator, N27003 (WDM 27-28-11).
(a) If the rudder trim indicator light is on, you corrected the fault.

————— END OF TASK —————

838. Rudder Trim Pointer Problems - Fault Isolation

A. Fault Isolation Procedure

- (1) Replace the rudder trim indicator, N27003 (WDM 27-28-11).
(a) Turn the rudder trim to the NOSE L then NOSE R position.
(b) If the rudder trim pointer moves as commanded, you corrected the fault.

————— END OF TASK —————

839. Rudder PCU (Upper) Actuation Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10412, 27-10420, 27-10424, 27-10428, 27-10432, 27-10436, 27-10439, 27-10443.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-21 TASKS 837-839

D633W103-ARO

Page 293
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Adjust the upper rudder power control unit (PCU), M27007. To adjust it, do this task: Rudder Adjustment (Rigging), AMM TASK 27-21-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the upper rudder PCU, M27007. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27007A from the upper rudder PCU, M27007.
- (d) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27007A at the upper rudder PCU, M27007 (WDM 27-21-11):

EFFECTIVITY
ARO ALL

27-21 TASK 839

D633W103-ARO

Page 294
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27321AC

pin F1
pin G1
pin K1
pin K2

DM27007A

pin 5
pin 15
pin 19
pin 7

(e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27007A.
- 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

840. Rudder Trim Position Signals Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11416.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:

EFFECTIVITY
ARO ALL

27-21 TASKS 839-840

D633W103-ARO

Page 295
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the rudder trim position transducer, M27043. These are the tasks:
 - Rudder Trim Position Transducer Removal, AMM TASK 27-21-03-000-801
 - Rudder Trim Position Transducer Installation, AMM TASK 27-21-03-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the rudder trim actuator, M27126. These are the tasks:
 - Rudder Trim Actuator Removal, AMM TASK 27-21-07-000-801
 - Rudder Trim Actuator Installation, AMM TASK 27-21-07-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the wiring for the rudder trim position transducer:

NOTE: It is not necessary to do a check of the wiring for the rudder trim actuator. There are other maintenance messages that will show if there is a problem with the wiring for the rudder trim actuator.
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connectors DM27043 from the rudder trim position transducer.
- (d) Do a wiring check between these contacts of connector DM27221AA at the E5-2 shelf and connector DM27043 at the rudder trim position transducer (WDM 27-21-15):

EFFECTIVITY
ARO ALL

27-21 TASK 840

D633W103-ARO

Page 296
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27221AA

pin A4 pin 6
pin B4 pin 5

DM27043

(e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connectors DM27043 to the rudder trim position transducer.
- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

(f) If you do not find a problem with the wiring, then continue.

- 1) Re-connect connectors DM27043 to the rudder trim position transducer.
- 2) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 3) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

(6) Exchange the ACE for M27121. This is the task:

- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27

(7) Replace the ACE recommended by the previous step. These are the tasks:

- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801

EFFECTIVITY
ARO ALL

27-21 TASK 840

D633W103-ARO

Page 297
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

841. Upper Rudder PCU Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16016.

B. Initial Evaluation

NOTE: This message can only occur when you do the Rudder Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: "select NO if you cannot align them". If you select YES, then this maintenance message will not show as a failure.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Alignment.

NOTE: AMM 27-21-11/501 contains information that will help you do this ground test.

 - (a) If you could adjust the rudder correctly during the ground test, then you corrected the fault.
 - (b) If you could not adjust the rudder correctly during the ground test, then continue.
- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the upper rudder power control unit (PCU), M27007. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

842. Middle Rudder PCU Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16017.

EFFECTIVITY
ARO ALL

27-21 TASKS 840-842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: This message can only occur when you do the Rudder Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: "select NO if you cannot align them". If you select YES, then this maintenance message will not show as a failure.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Alignment.

NOTE: AMM 27-21-11/501 contains information that will help you do this ground test.

- (a) If you could adjust the rudder correctly during the ground test, then you corrected the fault.
 - (b) If you could not adjust the rudder correctly during the ground test, then continue.
- (2) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the middle rudder power control unit (PCU), M27008. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

843. Left 2 Pedal Position Transducer Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16020.

B. Initial Evaluation

NOTE: This message can only occur when you do the Pedal Position ground test on the MAT. It will occur if the ground test is failed. IF the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Adjust left 2 pedal position transducer. To adjust it, do this task: Pedal Position Transducer Adjustment (Rigging), AMM TASK 27-21-00-800-804.
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Pedal Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-21 TASKS 842-843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.1
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:
- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect the connector DM27138 for the left 2 rudder pedal position transducer, M27138.
- (d) Do a wiring check between these contacts of connector DM27321AA at the E2-5 shelf and connector DM27138 at the rudder pedal position transducer (WDM 27-21-11):

DM27321AA	DM27138
pin A6	pin 5
pin B6	pin 6

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27138 for the rudder pedal position transducer.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-21 TASK 843

D633W103-ARO

Page 298.2
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (g) Re-connect connector DM27138 for the rudder pedal position transducer.
- (3) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Pedal Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left 2 pedal position transducer, M27138. These are the tasks:
 - Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801
 - Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Pedal Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

844. Right 1 Pedal Position Transducer Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16021.

B. Initial Evaluation

NOTE: This message can only occur when you do the Pedal Position ground test on the MAT. It will occur if the ground test is failed. IF the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Adjust right 1 pedal position transducer. To adjust it, do this task: Pedal Position Transducer Adjustment (Rigging), AMM TASK 27-21-00-800-804.
 - (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Pedal Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-21 TASKS 843-844

D633W103-ARO

Page 298.3
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect the connector DM27237 for the right 1 rudder pedal position transducer.
- (d) Do a wiring check between these contacts of connector DM27221AA at the E5-2 shelf and connector DM27237 at the rudder pedal position transducer (WDM 27-21-13):

DM27221AA	DM27237
pin A6	pin 5
pin C6	pin 1

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27237 for the rudder pedal position transducer.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27237 for the rudder pedal position transducer.
- (3) Install a new ACE-R, M27221.

EFFECTIVITY
ARO ALL

27-21 TASK 844

D633W103-ARO

Page 298.4
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Pedal Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right 1 pedal position transducer, M27237. These are the tasks:
- Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801
 - Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Pedal Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

845. Right 2 Pedal Position Transducer Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16022.

B. Initial Evaluation

NOTE: This message can only occur when you do the Pedal Position ground test on the MAT. It will occur if the ground test is failed. IF the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Adjust right 2 pedal position transducer. To adjust it, do this task: Pedal Position Transducer Adjustment (Rigging), AMM TASK 27-21-00-800-804.
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Pedal Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:
- (a) Open these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR

EFFECTIVITY
ARO ALL

27-21 TASKS 844-845

D633W103-ARO

Page 298.5
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect the connector DM27237 for the right 1 rudder pedal position transducer.
- (d) Do a wiring check between these contacts of connector DM27122AA at the E1-1 shelf and connector DM27238 at the rudder pedal position transducer (WDM 27-21-12):

DM27122AA	DM27238
pin A6	pin 5
pin B6	pin 6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27238 for the rudder pedal position transducer.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27238 for the rudder pedal position transducer.
- (3) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 845

D633W103-ARO

Page 298.6
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Pedal Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right 2 pedal position transducer, M27238. These are the tasks:
- Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801
 - Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Control, System Test, Pedal Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

846. Upper Rudder PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15029.

B. Initial Evaluation

- (1) Close this circuit breaker on the center Power Supply Assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-C	RUD PCU

- (2) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.
- (3) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (4) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
- (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

EFFECTIVITY
ARO ALL

27-21 TASKS 845-846

D633W103-ARO

Page 298.7
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- (c) Remove the PSA-C, M24301, from the E2-6 shelf.
- (d) Remove connector DM27007A from the upper rudder power control unit (PCU), M27007.
- (e) Remove connector DM27008B from the middle rudder PCU, M27008.
- (f) Do a wiring check between these pins of connector DM27008B for the middle PCU and connector DM24301AD at the PSA-C (WDM 27-21-11):

DM27008B	DM24301AD
pin 3	pin 29
pin 5	pin 29

- (g) Do a wiring check between these pins of connector DM27007A for the upper PCU and connector DM24301AD at the PSA-C (WDM 27-21-11):

DM27007A	DM24301AD
pin 16	pin 29

- (h) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27007A to the upper PCU, M27007.
 - 3) Re-connect connector DM27008B to the middle PCU, M27008.
 - 4) Re-install the PSA-C, M24301.
 - 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- 6) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- 7) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (i) If you do not find a problem with the wiring, then continue.
- (2) Replace the PSA-C, M24301. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801

EFFECTIVITY
ARO ALL

27-21 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.8
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the upper rudder PCU, M27007. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the middle rudder PCU, M27008. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

END OF TASK

847. Middle Rudder PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15030.

B. Initial Evaluation

- (1) Close this circuit breaker on the left Power Supply Assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-L	RUD PCU

- (2) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.
- (3) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (4) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-21 TASKS 846-847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.9
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

(1) Do this check of the power wiring:

- (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- (c) Remove the PSA-L, M24101, from the E1-6 shelf.
- (d) Remove connector DM27008A from the middle rudder power control unit (PCU), M27008.
- (e) Remove connector DM27009B from the lower rudder PCU, M27009.
- (f) Do a wiring check between these pins of connector DM27009B for the lower PCU and connector DM24101AD at the PSA-L (WDM 27-21-12):

DM27009B	DM24101AD
pin 3	pin 29
pin 5	pin 29

- (g) Do a wiring check between these pins of connector DM27008A for the middle PCU and connector DM24101AD at the PSA-L (WDM 27-21-12):

DM27008A	DM24101AD
pin 16	pin 29

- (h) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27009B to the lower PCU, M27009.
 - 3) Re-connect connector DM27008A to the middle PCU, M27008.
 - 4) Re-install the PSA-L, M24101.
 - 5) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

EFFECTIVITY
ARO ALL

27-21 TASK 847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.10
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- 6) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- 7) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (i) If you do not find a problem with the wiring, then continue.
- (2) Replace the PSA-L, M24101. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the middle rudder PCU, M27008. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Replace the lower rudder PCU, M27009. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-21 TASK 847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.11
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

848. Upper Rudder PCU Bypass Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10403.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
- (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- (c) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Disconnect connector DM27007A from the upper rudder power control unit (PCU).
- (e) Remove the PSA-C, M24301.
- (f) Do a wiring check between these contacts of connector DM27321AC for ACE-C and connector DM27007A at the rudder PCU (WDM 27-21-11):

DM27321AC	DM27007A
pin F2	pin 17

- (g) Do a wiring check between these pins of connector DM24301AD for the PSA-C and connector DM27007A at the rudder PCU (WDM 27-21-11):

DM24301AD	DM27007A
pin 29	pin 16

- (h) Do a wiring check between these pins of connector DM27321AB for the ACE-C and connector DM24301AD at the PSA-C (WDM 27-21-11):

EFFECTIVITY
ARO ALL

27-21 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.12
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27321AB

pin A5

DM24301AD

pin 30

- (i) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ACE-C, M27321. To install it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 3) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Re-connect the connector DM27007A to the upper rudder PCU.
 - 5) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- 6) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- 7) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- 8) If the maintenance message does not show on the ground test display, you corrected the fault.

- (j) If you do not find a problem with the wiring, then continue.

- (2) Install a new ACE-C M27321. These are the tasks:

- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

- (a) Re-connect the connector DM27007A to the upper rudder PCU.
- (b) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (c) Close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- (d) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

EFFECTIVITY
ARO ALL

27-21 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.13
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- (f) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-C, M24301. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the upper rudder PCU, M27007. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

849. Middle Rudder PCU Bypass Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10404.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-21 TASKS 848-849

D633W103-ARO

Page 298.14
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:

- (a) Open this circuit breaker and install a DO-NOT-CLOSE tag on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- (c) Remove the left-1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Disconnect connector DM27008A from the middle rudder power control unit (PCU).
- (e) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (f) Do a wiring check between these contacts of connector DM27121AC for ACE-L and connector DM27008A at the rudder PCU (WDM 27-21-12):

DM27121AC	DM27008A
pin F2	pin 17

- (g) Do a wiring check between these pins of connector DM24101AD for the PSA-L and connector DM27008A at the rudder PCU (WDM 27-21-12):

DM24101AD	DM27008A
pin 29	pin 16

- (h) Do a wiring check between these pins of connector DM27121AB for the ACE-L1 and connector DM24101AD at the PSA-L (WDM 27-21-12):

DM27121AB	DM24101AD
pin A5	pin 30

- (i) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.15
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 4) Re-connect the connector DM27008A to the middle rudder PCU.
- 5) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- 6) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- 7) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- 8) If the maintenance message does not show on the ground test display, you corrected the fault.
- (j) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L1 M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Re-connect the connector DM27008A to the middle rudder PCU.
- (b) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (c) Close this circuit breaker on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (d) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.

EFFECTIVITY
ARO ALL

27-21 TASK 849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.16
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (f) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the PSA-L, M24101. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the damping solenoid 881600, (component of the PCU). These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the middle rudder PCU, M27008. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Confidence.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

850. Upper Rudder PCU Pressure Reducer Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10409.

EFFECTIVITY
ARO ALL

27-21 TASKS 849-850

D633W103-ARO

Page 298.17
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Do a check for 28 VDC from terminal UB5 of terminal block TB5201 at the E5-2 shelf to structure ground (WDM 27-21-13).
 - (b) If there is not 28 VDC at terminal UB5 of terminal block TB5201, then do these steps:
 - 1) Remove the right power supply assembly (PSA-R), M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of terminal block TB5201 at the E5-2 shelf and the connector DM24201AD at the E5-1 shelf (WDM 27-21-13):

TB5201

DM24201AD

term UB5 pin 29

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If you do not find a problem with the wiring, then continue.
 - 5) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
 - (c) If there is 28 VDC at terminal UB5 of terminal block TB5201, then continue.
- (2) Do this check of the control wiring for the pressure reducer solenoid-operated valve (SOV):

EFFECTIVITY
ARO ALL

27-21 TASK 850

D633W103-ARO

Page 298.18
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect the connector DM27007B from the upper rudder power control unit (PCU).
- (d) Do a wiring check between these pins of connector DM27221AC for the ACE-R and connector DM27007B at the PCU (WDM 27-21-13):

DM27221AC	DM27007B
pin G4	pin 6

- (e) Do a wiring check between these pins of terminal block TB5201 and connector DM27007B at the PCU (WDM 27-21-13):

TB5201	DM27007B
term UB5	pin 5

- (f) Do a wiring check between pin A5 of connector DM27221AB and structure ground (WDM 27-21-13).
- (g) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect the connector DM27007B to the PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-21 TASK 850

D633W103-ARO

Page 298.19
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (h) If you do not find a problem with the wiring, then continue.
- (3) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect the connector DM27007B to the PCU.
- (b) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:
- Power Supply Assembly Right, M24201**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|-------------------|
| A | 1 | CBA1-R | ACE PWR |
| A | 3 | CBA3-R | AIL PCU |
| A | 5 | CBA5-R | FLPRN PCU |
| A | 7 | CBA7-R | ELEV PCU |
| A | 9 | CBA9-R | RUD PCU |
| B | 2 | CBB2-R | STAB TRIM |
| B | 4 | CBB4-R | AUTO-SPDBRK (L,R) |
- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the upper rudder PCU, M27007. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-21 TASK 850

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.20
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

851. Middle Rudder PCU Pressure Reducer Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10410.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Do a check for 28 VDC from terminal UB57 of terminal block TB2501 at the E2-5 shelf to structure ground (WDM 27-21-11).
 - (b) If there is not 28 VDC at terminal UB57 of terminal block TB2501, then do these steps:
 - 1) Remove the center power supply assembly (PSA-C), M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of terminal block TB2501 at the E2-5 shelf and the connector DM24301AD at the E2-6 shelf (WDM 27-21-11):

TB2501	DM24301AD
term UB57	pin 29
- (2) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (3) If you do not find a problem with the wiring, then continue.
- (4) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - c) If the maintenance message shows on the ground test display, then continue.
- (5) If there is 28 VDC at terminal UB57 of terminal block TB2501, then continue.
- (6) Do this check of the control wiring for the pressure reducer solenoid-operated valve (SOV):

EFFECTIVITY
ARO ALL

27-21 TASK 851



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf.
(c) Disconnect the connector DM27008B from the middle rudder power control unit (PCU).
(d) Do a wiring check between these pins of connector DM27321AC for the ACE-C and connector DM27008B at the PCU (WDM 27-21-11):

DM27321AC	DM27008B
pin G4	pin 6

- (e) Do a wiring check between these pins of terminal block TB2501 and connector DM27008B at the PCU (WDM 27-21-11):

TB2501	DM27008B
term UB57	pin 5

- (f) Do a wiring check between pin A5 of connector DM27321AB and structure ground (WDM 27-21-11).
(g) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect the connector DM27008B to the PCU.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.

EFFECTIVITY
ARO ALL

27-21 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.22
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (h) If you do not find a problem with the wiring, then continue.
- (3) Install a new ACE-C, M27321. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Re-connect the connector DM27008B to the PCU.
- (b) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:
- Power Supply Assembly Center, M24301**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|---------------|
| A | 1 | CBA1-C | ACE PWR |
| A | 3 | CBA3-C | AIL PCU |
| A | 5 | CBA5-C | FLPRN PCU |
| A | 7 | CBA7-C | ELEV PCU |
| A | 9 | CBA9-C | RUD PCU |
| B | 2 | CBB2-C | STAB TRIM |
| B | 6 | CBB6-C | ELEV FEEL (C) |
- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the middle rudder PCU, M27008. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-21 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.23
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

852. Upper Gust Suppression Transducer Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16047.

B. Initial Evaluation

NOTE: This message can only occur when you do the Gust Suppression Pressure Transducers ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Do this check of the gust suppression pressure transducer wiring:
- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27039 from the upper gust suppression pressure transducer, M27039.
- (d) Do a wiring check between these pins of connector DM27321AB for the ACE-C and connector DM27039 for the transducer (WDM 27-21-14):

DM27321AB		DM27039
pin F8	.....	pin 2
pin F9	.....	pin 3
pin F10	.....	pin 7
pin G8	.....	pin 5
pin G9	.....	pin 4

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27039 to the gust suppression pressure transducer, M27309.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 852

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.24
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Gust Suppression Pressure Transducers.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect connector DM27039 to the gust suppression pressure transducer, M27039.
- (b) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Gust Suppression Pressure Transducers.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the upper gust suppression pressure transducer, M27039. These are the tasks:
- Gust Suppression Pressure Transducer Removal, AMM TASK 27-21-10-000-801
 - Gust Suppression Pressure Transducer Installation, AMM TASK 27-21-10-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Gust Suppression Pressure Transducers.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-21 TASK 852

D633W103-ARO

Page 298.25
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

853. Rudder PCU (Upper) Failed the ACE Monitor Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16058.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27007A from the upper power control unit (PCU) on the rudder.
- (d) Do a wiring check between these pins of connector DM27321AC (for ACE-C) and connector DM27007A (at the rudder PCU) (WDM 27-21-11):

EFFECTIVITY
ARO ALL

27-21 TASK 853

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.26
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27321AC

pin K2
pin K1
pin F1
pin G1

DM27007A

pin 7
pin 19
pin 5
pin 15

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27007A to the upper PCU on the rudder.
 - 3) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Replace the upper rudder PCU, M27007. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

854. Rudder Power Control Unit (Upper) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10400.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.

EFFECTIVITY
ARO ALL

27-21 TASKS 853-854

D633W103-ARO

Page 298.27
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:

- (a) Open these circuit breakers on the PSA-C and attach safety tags:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (c) Disconnect connector DM27007A from the upper rudder power control unit (PCU), M27007.
 - (d) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27007A at the rudder PCU (WDM 27-21-11):

<u>DM27321AC</u>	<u>DM27007A</u>
pin G3	pin 8
pin F3	pin 9

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27007A to the upper rudder PCU.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-C:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU

EFFECTIVITY
ARO ALL

27-21 TASK 854

D633W103-ARO

Page 298.28
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Make sure that the safety tags are removed and these circuit breakers are closed on the PSA-C:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the upper rudder PCU, M27007. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801

EFFECTIVITY
ARO ALL

27-21 TASK 854

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.29
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

855. Rudder Power Control Unit (Middle) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10401.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:
 - (a) Open these circuit breakers and install safety tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27008A from the middle rudder power control unit (PCU), M27008.
- (d) Do a wiring check between these pins of connector DM27121AC at the E1-5 shelf and connector DM27008A at the rudder PCU (WDM 27-21-12):

EFFECTIVITY
ARO ALL

27-21 TASKS 854-855

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.30
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27121AC

pin G3 pin 8
pin F3 pin 9

DM27008A

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27008A to the middle rudder PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Make sure that the safety tags are removed and these circuit breakers are closed:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-21 TASK 855

D633W103-ARO

Page 298.31
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the middle rudder PCU, M27008. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

856. Rudder Power Control Unit (Upper) Damping Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10406.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Open this circuit breaker and attach safety tag on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU

- (b) Disconnect connector DM27007B from the upper rudder power control unit (PCU).

EFFECTIVITY
ARO ALL

27-21 TASKS 855-856

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.32
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU

- (d) Do a check for 28 VDC from pin 3 of connector DM27007B to structure ground (WDM 27-21-13).

- (e) If there is not 28 VDC at pin 3 of connector DM27007B, then do these steps:

- 1) Replace the PSA-R. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- 2) Open this circuit breaker and attach safety tag on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU

- 3) Check for short between these pins of connector DM27007B, to the upper rudder PCU, M27007. (WDM 27-21-13)

DM27007B	DM27007B
Pin 3	Pin 2
Pin 3	Pin 5
Pin 3	Pin 6
Pin 2	Pin 5
Pin 2	Pin 6
Pin 5	Pin 6

- a) If a short is found, repair the wiring.
- 4) Re-connect connector DM27007B to the upper rudder PCU, M27007.
- 5) Close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- 7) Repair the wiring between pin 3 of connector DM27007B and the PSA-R, M24201 (WDM 27-21-13).
- 8) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-21 TASK 856

D633W103-ARO

Page 298.33
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (f) If there is 28 VDC at pin 3 of connector DM27007B, then continue.
- (2) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27007B at the rudder PCU (WDM 27-21-13):

DM27221AC	DM27007B
pin H3	pin 2

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27007B to the upper rudder PCU.
 - 3) Re-install the ACE-R, M27221.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (3) Do this check of the ground wiring:

EFFECTIVITY
ARO ALL

27-21 TASK 856

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.34
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do a check for continuity from pin A5 of connector DM27221AB at the E5-2 to structure ground (WDM 27-21-13).
- (b) If there is not continuity between pin A5 of connector DM27221AB and structure ground, then do these steps:
 - 1) Repair the wiring between pin A5 of connector DM27221AB and the PSA-R, M24201.
 - 2) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-connect connector DM27007B to the upper rudder PCU.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If there is continuity between pin A5 of connector DM27221AB and structure ground, then continue.
- (4) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-21 TASK 856

D633W103-ARO

Page 298.35
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the upper rudder PCU, M27007. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

857. Rudder Power Control Unit (Middle) Damping Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10407.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Open this circuit breaker and attach safety tag on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-C	RUD PCU

- (b) Disconnect connector DM27008B from the middle rudder power control unit (PCU), M27008.

EFFECTIVITY
ARO ALL

27-21 TASKS 856-857

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.36
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Remove the safety tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-C	RUD PCU

- (d) Do a check for 28 VDC from pin 3 of connector DM27008B to structure ground (WDM 27-21-11).

- (e) If there is not 28 VDC at pin 3 of connector DM27008B, then do these steps:

- 1) Replace the PSA-C. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- 2) Open this circuit breaker and attach safety tag on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-C	RUD PCU

- 3) Check for short between these pins of connector DM27008B, to the middle rudder PCU, M27008. (WDM 27-21-11)

DM27008B	DM27008B
Pin 3	Pin 2
Pin 3	Pin 5
Pin 3	Pin 6
Pin 2	Pin 5
Pin 2	Pin 6
Pin 5	Pin 6

- a) If a short is found, repair the wiring.
- 4) Re-connect connector DM27008B to the middle rudder PCU, M27008.
- 5) Remove the safety tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-C	RUD PCU

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- 7) Repair the wiring between pin 3 of connector DM27008B and the PSA-C, M24301 (WDM 27-21-11).
- 8) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-21 TASK 857

D633W103-ARO

Page 298.37
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (f) If there is 28 VDC at pin 3 of connector DM27008B, then continue.
- (2) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27008B at the rudder PCU (WDM 27-21-11):

DM27321AC	DM27008B
pin H3	pin 2

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27008B to the middle rudder PCU.
 - 3) Re-install the ACE-C, M27321.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (3) Do this check of the ground wiring:
- (a) Do a check for continuity from pin A5 of connector DM27321AB at the E2-5 to structure ground (WDM 27-21-11).

EFFECTIVITY
ARO ALL

27-21 TASK 857

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.38
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If there is not continuity between pin A5 of connector DM27321AB and structure ground, then do these steps:
- 1) Repair the wiring between pin A5 of connector DM27321AB and the PSA-C, M24301.
 - 2) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-connect connector DM27008B to the middle rudder PCU.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If there is continuity between pin A5 of connector DM27321AB and structure ground, then continue.
- (4) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.

EFFECTIVITY
ARO ALL

27-21 TASK 857

D633W103-ARO

Page 298.39
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the middle rudder PCU. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

858. Pedal Position Transducer (Left 2) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12201.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

EFFECTIVITY
ARO ALL

27-21 TASKS 857-858

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.40
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Disconnect the connector DM27138 for the left 2 rudder pedal position transducer, M27138.
- (d) Do a wiring check between these contacts of connector DM27321AA at the E2-5 shelf and connector DM27138 at the rudder pedal position transducer (WDM 27-21-11):

DM27321AA	DM27138
pin B5	pin 9
pin C5	pin 8
pin A6	pin 5
pin C6	pin 1
pin B6	pin 6

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27138 for the rudder pedal position transducer.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Replace the left 2 rudder pedal position transducer, M27138. These are the tasks:
- Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801
 - Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801
- (a) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU

EFFECTIVITY
ARO ALL

27-21 TASK 858

D633W103-ARO

Page 298.41
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

859. Pedal Position Transducer (Right 1) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12202.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU

EFFECTIVITY
ARO ALL

27-21 TASKS 858-859

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.42
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect the connector DM27237 for the right 1 rudder pedal position transducer.
- (d) Do a wiring check between these contacts of connector DM27221AA at the E5-2 shelf and connector DM27237 at the rudder pedal position transducer (WDM 27-21-13):

<u>DM27221AA</u>	<u>DM27237</u>
pin B5	pin 9
pin C5	pin 8
pin A6	pin 5
pin C6	pin 1
pin B6	pin 6

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27237 for the rudder pedal position transducer.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Replace the right 1 rudder pedal position transducer, M27237. These are the tasks:
- Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801
 - Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801

EFFECTIVITY
ARO ALL

27-21 TASK 859

D633W103-ARO

Page 298.43
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

860. Pedal Position Transducer (Right 2) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12203.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:

EFFECTIVITY
ARO ALL

27-21 TASKS 859-860

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.44
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect the connector DM27237 for the right 1 rudder pedal position transducer.
- (d) Do a wiring check between these contacts of connector DM27122AA at the E1-1 shelf and connector DM27238 at the rudder pedal position transducer (WDM 27-21-12):

DM27122AA	DM27238
pin B5	pin 9
pin C5	pin 8
pin A6	pin 5
pin C6	pin 1
pin B6	pin 6

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27238 for the rudder pedal position transducer.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Replace the right 2 rudder pedal position transducer, M27238. These are the tasks:
- Rudder Pedal Position Transducers Removal, AMM TASK 27-21-04-000-801

EFFECTIVITY
ARO ALL

27-21 TASK 860

D633W103-ARO

Page 298.45
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Rudder Pedal Position Transducer Installation, AMM TASK 27-21-04-400-801
- (a) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27122. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

861. Rudder PCU (Middle) Actuation Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10413, 27-10421, 27-10425, 27-10429, 27-10433, 27-10437, 27-10440, 27-10444.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-21 TASKS 860-861

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.46
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Adjust the middle rudder power control unit (PCU), M27008. To adjust it, do this task: Rudder Adjustment (Rigging), AMM TASK 27-21-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Exchange the ACE for M27008. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (6) Replace the middle rudder PCU, M27008. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM

EFFECTIVITY
ARO ALL

27-21 TASK 861

D633W103-ARO

Page 298.47
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27008A from the middle rudder PCU, M27008.
- (d) Do a wiring check between these pins of connector DM27121AC at the E1-5 shelf and connector DM27008A at the middle rudder PCU, M27008 (WDM 27-21-12):

<u>DM27121AC</u>		<u>DM27008A</u>
pin F1	.....	pin 5
pin G1	.....	pin 15
pin K1	.....	pin 19
pin K2	.....	pin 7

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27008A.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

862. Rudder PCU (Lower) Actuation Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10414, 27-10422, 27-10426, 27-10430, 27-10434, 27-10438, 27-10441, 27-10445.

EFFECTIVITY
ARO ALL

27-21 TASKS 861-862

D633W103-ARO

Page 298.48
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the lower rudder power control unit (PCU), M27009. To adjust it, do this task: Rudder Adjustment (Rigging), AMM TASK 27-21-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the right actuator control electronics (ACE-R), M27221. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the lower rudder PCU, M27009. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU

EFFECTIVITY
ARO ALL

27-21 TASK 862

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.49
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27009A from the lower rudder PCU, M27009.
- (d) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27009A at the lower rudder PCU, M27009 (WDM 27-21-13):

DM27221AC		DM27009A
pin F1	.....	pin 5
pin G1	.....	pin 15
pin K1	.....	pin 19
pin K2	.....	pin 7

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27009A.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

863. Rudder Power Control Unit (Upper) Delta Pressure Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11410.

EFFECTIVITY
ARO ALL

27-21 TASKS 862-863

D633W103-ARO

Page 298.50
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27007A from the upper rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27321AC at the E2-5 shelf and connector DM27007A at the rudder PCU (WDM 27-21-11)

DM27321AC	DM27007A
pin F1	pin 5
pin G1	pin 15

- 1) Check for shorts to ground for pins 5 and 15.
 - 2) Check for shorts between pins 5 and 15.
 - 3) Check for shorts between pin 5 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
 - 4) Check for shorts between pin 15 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
- (e) Disconnect connector DM27008B.
 - 1) Check for shorts between pin 5 and DM27008B pins 2, 3, 5 and 6.
 - 2) Check for shorts between pin 15 and DM27008B pins 2, 3, 5 and 6.
 - (f) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-21 TASK 863

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.51
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-connect connector DM27007A to the upper rudder PCU.
- 3) Re-connect connector DM27008B.
- 4) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 7) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-21 TASK 863

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.52
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the upper rudder PCU, M27007. These are the tasks:
- Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

864. Rudder Power Control Unit (Middle) Delta Pressure Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11411.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-21 TASKS 863-864

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.53
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27008A from the middle rudder power control unit (PCU).
- (d) Do a wiring check between these contacts of connector DM27121AC at the E1-5 shelf and connector DM27008A at the rudder PCU (WDM 27-21-12)

DM27121AC

pin F1 pin 5
pin G1 pin 15

DM27008A

- 1) Check for shorts to ground for pins 5 and 15.
 - 2) Check for shorts between pins 5 and 15.
 - 3) Check for shorts between pin 5 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
 - 4) Check for shorts between pin 15 and pins 3, 7, 8, 9, 11, 12, 13, 16, 17, 18 and 19.
- (e) Disconnect connector DM27009B.
- 1) Check for shorts between pin 5 and DM27009B pins 2, 3, 5 and 6.
 - 2) Check for shorts between pin 15 and DM27009B pins 2, 3, 5 and 6.
- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27008A to the middle rudder PCU.
 - 3) Re-connect connector DM27009B.
 - 4) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU

EFFECTIVITY
ARO ALL

27-21 TASK 864

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.54
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 7) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-21 TASK 864

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.55
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the middle rudder PCU, M27008. These are the tasks:
 - Rudder Power Control Units (PCU) Removal, AMM TASK 27-21-11-000-801
 - Rudder Power Control Units (PCU) Installation, AMM TASK 27-21-11-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

865. Pedal Position Signals from Pedal Position Transducers Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12206.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Examine the pedal control rods for bent or loose.
 - (a) If you find a problem with the pedal control rods, then do these steps:
 - 1) Repair the pedal control rods.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (b) If you do not find a problem with the pedal control rods, then continue.
- (2) Do this task: Rudder Pedal Adjustment, AMM TASK 27-21-00-800-802.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pedal Position.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-21 TASKS 864-865

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.56
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

866. Rudder PCU (Middle) Failed the ACE Monitor Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16059.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27008A from the middle rudder power control unit (PCU).
- (d) Do a wiring check between these pins of connector DM27121AC (for ACE-L1) and connector DM27008A (at the rudder PCU) (WDM 27-21-12):

EFFECTIVITY
ARO ALL

27-21 TASK 866

D633W103-ARO

Page 298.57
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27121AC

pin K2
pin K1
pin F1
pin G1

DM27008A

pin 7
pin 19
pin 5
pin 15

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27008A to the middle rudder PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Exchange the ACE for M27008. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (6) Replace the middle rudder PCU, M27008. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-21 TASK 866

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.58
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

867. Rudder PCU (Lower) Failed the ACE Monitor Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16060.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27009A from the lower rudder power control unit (PCU).
- (d) Do a wiring check between these pins of connector DM27221AC (for ACE-R) and connector DM27009A (at the rudder PCU) (WDM 27-21-11):

EFFECTIVITY
ARO ALL

27-21 TASK 867

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.59
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27221AC

pin K2
pin K1
pin F1
pin G1

DM27009A

pin 7
pin 19
pin 5
pin 15

(e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27009A to the lower rudder PCU.
- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

(f) If you do not find a problem with the wiring, then continue.

(4) Replace the lower rudder PCU, M27009. These are the tasks:

- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
- Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801

(a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

868. Thrust Asymmetry Compensation Switch Problems - Fault Isolation

A. Maintenance Messages

(1) This task is for maintenance message: 27-10807.

B. Initial Evaluation

NOTE: This maintenance message occurs when the ACE-C finds a problem with the circuit for the thrust asymmetry compensation (TAC) switch. It occurs if the ACE finds both sides of the switch are open, or if the ACE finds both sides of the switch are closed (at the same time).

EFFECTIVITY
ARO ALL

27-21 TASKS 867-868

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.60
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Set the THRUST ASYM COMP switch (on the overhead panel) to the OFF position for a minimum of 10 seconds.
 - (b) Set the switch to the AUTO position.
 - (c) After 1.5 minutes look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT.
 - 1) If the maintenance message shows ACTIVE or LATCHED, then do the Fault Isolation Procedure below.
 - 2) If the maintenance message shows NOT ACTIVE (or does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the THRUST ASYM COMP SWITCH (S3 of M27042) (WDM 27-21-16).
 - (a) Set the THRUST ASYM COMP switch (on the overhead panel) to the OFF position for a minimum of 10 seconds.
 - (b) Set the switch to the AUTO position.
 - (c) After 1.5 minutes look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT.
 - 1) If the maintenance message shows NOT ACTIVE (or does not show), then you corrected the fault.
 - 2) If the maintenance message shows ACTIVE or LATCHED, then continue.
- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Set the THRUST ASYM COMP switch (on the overhead panel) to the OFF position, for a minimum of 10 seconds.
 - (b) Set the switch to the AUTO position.
 - (c) After 1.5 minutes look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT.
 - 1) If the maintenance message shows NOT ACTIVE (or does not show), then you corrected the fault.
 - 2) If the maintenance message shows ACTIVE or LATCHED, then continue.
- (4) Do this check of the switch wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU

EFFECTIVITY
ARO ALL

27-21 TASK 868

D633W103-ARO

Page 298.61
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321, from the E2-5 shelf.
- (c) Do a wiring check between these contacts of connector DM27321AA (for the ACE) and the TAC switch (WDM 27-21-16):

DM27321AA	switch
pin B2	pin 7
pin C2	pin 9
pin C3	pin 8

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ACE-C, M27321.
 - 3) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 4) Set the THRUST ASYM COMP switch (on the overhead panel) to the OFF position, for a minimum of 10 seconds.
- 5) Set the switch to the AUTO position.
- 6) After 1.5 minutes look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT.
 - a) If the maintenance message shows NOT ACTIVE (or does not show), then you corrected the fault.

————— **END OF TASK** —————

869. Rudder Trim Switch Problems - Fault Isolation

A. **Maintenance Messages**

- (1) This task is for maintenance message: 27-10803.

EFFECTIVITY
ARO ALL

27-21 TASKS 868-869

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.62
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - (a) If the maintenance message does not show on the Ground Test Display, then there was an intermittent problem.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Replace the aileron/rudder trim control panel, M27036. These are the tasks:
 - Rudder and Aileron Trim Module - Removal, AMM TASK 27-21-08-000-801
 - Rudder and Aileron Trim Module - Installation, AMM TASK 27-21-08-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the rudder trim actuator, M27126. These are the tasks:
 - Rudder Trim Actuator Removal, AMM TASK 27-21-07-000-801
 - Rudder Trim Actuator Installation, AMM TASK 27-21-07-400-801

EFFECTIVITY
ARO ALL

27-21 TASK 869

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.63
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this check of the wiring between the ACE-L1 and the control panel:
- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Remove the control panel, M27306. To remove it, do this task: Rudder and Aileron Trim Module - Removal, AMM TASK 27-21-08-000-801.
- (d) Do a wiring check between these pins of connector DM27121AA at the E1-5 shelf and connector DM27036B at the control panel, M27036 (WDM 27-21-15):

DM27121AA	DM27036B
pin K10	pin 6
pin J10	pin 7
pin K11	pin 8

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the control panel, M27306. To install it, do this task: Rudder and Aileron Trim Module - Installation, AMM TASK 27-21-08-400-801.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM

EFFECTIVITY
ARO ALL

27-21 TASK 869

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.64
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (h) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (8) Do this check of the wiring between the ACE-R and the control panel:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27221AA at the E5-2 shelf and connector DM27036C at the control panel, M27036 (WDM 27-21-15):

DM27221AA

pin K11
pin K10

DM27036C

pin 8
pin 9

EFFECTIVITY
ARO ALL

27-21 TASK 869

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.65
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

(d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the control panel, M27306. To install it, do this task: Rudder and Aileron Trim Module - Installation, AMM TASK 27-21-08-400-801.
- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

(e) If you do not find a problem with the wiring, then continue.

(9) Do this check of the wiring between the ACE-R and the rudder trim actuator:

(a) Open this circuit breaker and attach safety tag on the PSA-L, M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Disconnect connector DM27126A from the rudder trim actuator, M27126.
- (c) Do a wiring check between these pins of connector DM27221AA at the E5-2 shelf and connector DM27126A at the rudder trim actuator, M27126 (WDM 27-21-15):

DM27221AA	DM27126A
pin J10	pin 11

(d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Connect connector DM27126A to the rudder trim actuator, M27126.
- 3) Re-install the control panel, M27306. To install it, do this task: Rudder and Aileron Trim Module - Installation, AMM TASK 27-21-08-400-801.
- 4) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-21 TASK 869

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.66
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Remove the safety tag and close this circuit breaker on the PSA-L, M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	CBB8-L	RUD TRIM ACTR (L)

- 7) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- 8) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (g) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (10) Do this check of the power wiring for the rudder trim actuator:
- (a) Remove the safety tag and close this circuit breaker on the PSA-L, M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this check for 28 VDC from pin 1 (+) to pin 8 (-) of connector DM27126A (the connector for the rudder trim actuator).

EFFECTIVITY
ARO ALL

27-21 TASK 869

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.67
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If there is not 28 VDC between pin 1 (+) and pin 8 (-) of DM27126A, then do these steps:
- 1) Remove the PSA-L, M24101, from the E1-6 shelf. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - 2) Do a wiring check between these pins of connector DM27126A at the rudder trim actuator and connector DM24101AD (the connector for the PSA) (WDM 27-21-15):

DM24101AD	DM27126A
pin 35	pin 8
pin 36	pin 1

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the PSA-L, M24101, in the E1-6 shelf. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - c) Re-connect connector DM27126A to the rudder trim actuator.
 - d) Re-install the control panel, M27306. To install it, do this task: Rudder and Aileron Trim Module - Installation, AMM TASK 27-21-08-400-801.
 - e) Remove the safety tag and close this circuit breaker on the PSA-L, M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	8	CBB8-L	RUD TRIM ACTR (L)

- f) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - g) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-L, M24101, in the E1-6 shelf. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - b) Re-connect connector DM27126A to the rudder trim actuator.
 - c) Re-install the control panel, M27306. To install it, do this task: Rudder and Aileron Trim Module - Installation, AMM TASK 27-21-08-400-801.
 - d) Remove the safety tag and close this circuit breaker on the PSA-L, M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	8	CBB8-L	RUD TRIM ACTR (L)

- e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.

- (d) If there is 28 VDC between pin 3 and pin 8 of DM27126A, then continue:

- (11) Do this check of the wiring between the rudder trim actuator and the control panel:

EFFECTIVITY
ARO ALL

27-21 TASK 869

D633W103-ARO

Page 298.68
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do a wiring check between these pins of connector DM27126A at the rudder trim actuator and connector DM27036C at the control panel, M27036 (WDM 27-21-15):

DM27126A	DM27126A
pin 2	pin 1
pin 2	pin 9
pin 2	pin 14

- (b) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the control panel, M27306. To install it, do this task: Rudder and Aileron Trim Module - Installation, AMM TASK 27-21-08-400-801.
- 3) Re-connect connector DM27126A to the rudder trim actuator.
- 4) Remove the safety tag and close this circuit breaker on the PSA-L, M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Rudder Trim System.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

870. EDIU (L) Thrust Signals Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10804.

B. Possible Causes

- (1) L Engine Data Interface Unit (EDIU), M73103

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

Left Power Management Panel, P110

Row	Col	Number	Name
M	17	C73601	L EDIU 2A
M	18	C73603	L EDIU 1B

Right Power Management Panel, P210

Row	Col	Number	Name
N	9	C73602	R EDIU 2A
N	10	C73604	R EDIU 1B

Standby Power Management Panel, P310

Row	Col	Number	Name
E	1	C73605	L EDIU 1A

EFFECTIVITY
ARO ALL

27-21 TASKS 869-870

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.69
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Standby Power Management Panel, P310

Row	Col	Number	Name
E	2	C73606	R EDIU 1A
E	3	C73607	L EDIU 2B
E	4	C73608	R EDIU 2B

D. Initial Evaluation

- (1) If maintenance message 31-68811 shows ACTIVE or LATCHED, do this task: AIMS No Output on Flight Controls ARINC 629 Bus - Fault Isolation, 31-42 TASK 908.

NOTE: This message can show after a communication problem with AIMS cabinet.

- (2) On the ADIRU/PFC DISC/TAC PANEL, do this check with the THRUST ASYM COMP (TAC) Switch, S3:

- (a) Make sure the Thrust Levers are not in the Reverse Thrust position.
- (b) Set the TAC Switch, S3, on the overhead panel to the AUTO position.
- (c) After 10 seconds, set the TAC Switch, S3, to the OFF position.
- (d) After 10 seconds, set the TAC Switch, S3, back to the AUTO position.
- (e) Look on the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT.
 - 1) If the Maintenance Message shows on the MAT, then do the Fault Isolation Procedure below.
 - 2) If the Maintenance Message shows NOT ACTIVE (or if the message does not show), then there was an intermittent fault or the fault was repaired before you operated the TAC Switch, S3, above.

NOTE: This message can show after a problem with the EDIU or the AIMS Gateway Function is repaired. This Chapter 27 Maintenance Message can occur at that time because the PFC latches the fault in its memory. This message did not show earlier because the EDIU or AIMS Maintenance Message prevented it.

E. Fault Isolation Procedure

- (1) Reload software in all three PFC as follows:
 - (a) Power down all three PFCs.
 - (b) After all three PFCs are powered down, power up the C PFC only.
 - (c) Reload software into the C PFC.

NOTE: If the software will not load, the PFC must be replaced.
 - (d) Power down the C PFC.
 - (e) Power up the R PFC only.
 - (f) Reload software into the R PFC.

NOTE: If the software will not load, the PFC must be replaced.
 - (g) Swap the L and R PFCs (do not power up any of the PFCs).
 - (h) Power up the R PFC only (PFC that was previously in the left position).
 - (i) Reload software into the R PFC.

NOTE: If the software will not load, the PFC must be replaced.
 - (j) Power down the R PFC.

EFFECTIVITY
ARO ALL

27-21 TASK 870

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.70
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (k) Power up all three PFCs.
- (l) Do the Repair Confirmation at the end of this task.
- (2) Replace the left EDIU, M73103. These are the tasks:
 - Engine Data Interface Unit (EDIU) Removal, AMM TASK 73-21-22-000-804-H00
 - Engine Data Interface Unit (EDIU) Installation, AMM TASK 73-21-22-400-808-H00

F. Repair Confirmation

- (1) Make sure the Thrust Levers are not in the Reverse Thrust position.
- (2) Set the TAC Switch, S3, on the overhead panel to the AUTO position.
- (3) After 10 seconds, set the TAC Switch, S3, to the OFF position.
- (4) After 10 seconds, set the TAC Switch, S3, back to the AUTO position.
- (5) Look on the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT.
 - (a) If the problem still exists, continue the Fault Isolation Procedure at the subsequent step.
 - (b) If the Maintenance Message shows NOT ACTIVE (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

871. EDIU (R) Thrust Signals Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10805.

B. Possible Causes

- (1) R EDIU, M73203

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	17	C73601	L EDIU 2A
M	18	C73603	L EDIU 1B

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
N	9	C73602	R EDIU 2A
N	10	C73604	R EDIU 1B

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C73605	L EDIU 1A
E	2	C73606	R EDIU 1A
E	3	C73607	L EDIU 2B
E	4	C73608	R EDIU 2B

EFFECTIVITY
ARO ALL

27-21 TASKS 870-871

D633W103-ARO

Page 298.71
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

D. Initial Evaluation

- (1) If maintenance message 31-68811 shows ACTIVE or LATCHED, do this task: AIMS No Output on Flight Controls ARINC 629 Bus - Fault Isolation, 31-42 TASK 908.

NOTE: This message can show after a communication problem with the AIMS cabinet.

- (2) Do this check with the TAC Switch, S3:
 - (a) Make sure the Thrust Levers are not in the Reverse Thrust position.
 - (b) Set the TAC Switch, S3 on the overhead panel to the AUTO position.
 - (c) After 10 seconds, set the TAC Switch, S3, to the OFF position.
 - (d) After 10 seconds, set the TAC Switch, S3, back to the AUTO position.
 - (e) Look on the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT.
 - 1) If the Maintenance Message shows on the MAT, then do the Fault Isolation Procedure below.
 - 2) If the Maintenance Message shows NOT ACTIVE (or if the message does not show), then there was an intermittent fault or the fault was repaired before you operated the TAC switch above.

NOTE: This message can show after a problem with the Engine Data Interface Unit (EDIU) or the AIMS Gateway Function is repaired. This Chapter 27 Maintenance Message can occur at that time because the PFC latches the fault in its memory. This message did not show earlier because the EDIU or AIMS Maintenance Message prevented it.

E. Fault Isolation Procedure

- (1) Reload software in all three PFC as follows:
 - (a) Power down all three PFCs.
 - (b) After all three PFCs are powered down, power up the C PFC only.
 - (c) Reload software into the C PFC.

NOTE: If the software will not load, the PFC must be replaced.
 - (d) Power down the C PFC.
 - (e) Power up the R PFC only.
 - (f) Reload software into the R PFC.

NOTE: If the software will not load, the PFC must be replaced.
 - (g) Swap the L and R PFCs (do not power up any of the PFCs).
 - (h) Power up the R PFC only (PFC that was previously in the left position).
 - (i) Reload software into the R PFC.

NOTE: If the software will not load, the PFC must be replaced.
 - (j) Power down the R PFC.
 - (k) Power up all three PFCs.
 - (l) Do the Repair Confirmation at the end of this task.
- (2) Replace the R EDIU, M73203. These are the tasks:
 - Engine Data Interface Unit (EDIU) Removal, AMM TASK 73-21-22-000-804-H00
 - Engine Data Interface Unit (EDIU) Installation, AMM TASK 73-21-22-400-808-H00

EFFECTIVITY
ARO ALL

27-21 TASK 871

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.72
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

F. Repair Confirmation

- (1) Make sure the Thrust Levers are not in the Reverse Thrust position.
- (2) Set the TAC Switch, S3, on the overhead panel to the AUTO position.
- (3) After 10 seconds, set the TAC Switch, S3, to the OFF position.
- (4) After 10 seconds, set the TAC Switch, S3, back to the AUTO position.
- (5) Look on the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT.
 - (a) If the problem still exists, continue the Fault Isolation Procedure at the subsequent step.
 - (b) If the Maintenance Message shows NOT ACTIVE (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

872. Rudder Pedal Damper Shows Red or No Color

A. Fault Isolation Procedure

- (1) If a minimum of 1/16 of an inch (in width) of green shows in the window of the damper, then the damper is serviceable.

NOTE: The damper must be at room temperature to get the correct indication.
- (2) If less than 1/16 of an inch of green shows, then replace the damper. These are the tasks:
 - Pedal Damper Removal, AMM TASK 27-21-05-000-801
 - Pedal Damper Installation, AMM TASK 27-21-05-400-801

————— END OF TASK —————

873. Rudder Trim Is Necessary to Maintain Straight and Level Flight - Fault Isolation

A. Initial Evaluation

- (1) If the rudder trim that is necessary to maintain straight and level flight is 1.0-unit or less, then there is no fault.
- (2) If the rudder trim that is necessary to maintain straight and level flight is greater than 1.0-unit, then do the Fault Isolation Procedure below.

B. Fault Isolation Procedure

- (1) Do these steps:
 - (a) Check with the flight crew or review log book entries for system faults in Flight Controls, Fuel Quantity or imbalance, Engine split throttles, EPR, N1 or performance disagreements.
 - 1) If any faults exist, do the applicable tasks to correct the faults.
 - (b) Check the MAT for Flight Control or related Fuel and Engine System fault messages.
 - 1) If any fault messages exist, do the applicable tasks to correct the faults and clear the messages.
 - (c) Do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (d) Select the flap position where trim is more than 1.0 units and do these steps:
 - 1) Use the AILERON trim switches and the RUDDER trim knob, on the P8 aft Aisle Stand panel to put the Captain's control wheel and the rudder to the center positions.

EFFECTIVITY
ARO ALL

27-21 TASKS 871-873

D633W103-ARO

Page 298.73
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Visually check flight control surfaces and fairings for droops, gaps, asymmetric conditions, misalignment, mismatches or damage.
 - a) If any conditions are visible, do the applicable tasks to correct the conditions.
- (2) Do these steps to adjust the rudder system:
 - (a) Do this task: Pedal Position Transducer Adjustment (Rigging), AMM TASK 27-21-00-800-804.
 - (b) Do this task: Rudder Trim Adjustment (Rigging), AMM TASK 27-21-00-820-801.
 - (c) Do this task: Rudder Adjustment (Rigging), AMM TASK 27-21-00-800-801.

————— **END OF TASK** —————

874. Left Modal Suppression Accelerometer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16062.

B. Initial Evaluation

NOTE: This message can only occur when you do the Modal Suppression Accelerometers ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed, the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Do this check of the modal suppression accelerometer wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27044 from the left modal suppression accelerometer, M27044.
- (d) Do a wiring check between these pins of connector DM27122AB for ACE-L2 and connector DM27044 for the left modal suppression accelerometer, M27044 (WDM 27-21-17):

DM27044		DM27122AB	
pin 1	.....	pin F9	
pin 2	.....	pin F8	
pin 4	.....	pin G8	
pin 5	.....	pin G9	
pin 8	.....	pin F10	

- (e) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-21 TASKS 873-874

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.74
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-connect connector DM27044 to the left modal suppression accelerometer, M27044.
- 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Modal Suppression Accelerometers.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L2. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect connector DM27044 to the left modal suppression accelerometer, M27044.
 - (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Modal Suppression Accelerometers.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the left modal suppression accelerometer, M27044. These are the tasks:
 - Accelerometer Removal, AMM TASK 27-21-13-000-801
 - Accelerometer Installation, AMM TASK 27-21-13-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Modal Suppression Accelerometers.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

875. Right Modal Suppression Accelerometer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16063.

B. Initial Evaluation

NOTE: This message can only occur when you do the Modal Suppression Accelerometers ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed, the maintenance message will not show on the ground test display.

EFFECTIVITY
ARO ALL

27-21 TASKS 874-875

D633W103-ARO

Page 298.75
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Do this check of the modal suppression accelerometer wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27045 from the right modal suppression accelerometer, M27045.
- (d) Do a wiring check between these pins of connector DM27221AB for ACE-R and connector DM27045 for the right modal suppression accelerometer, M27045 (WDM 27-21-17):

DM27045	DM27221AB
pin 1	pin F9
pin 2	pin F8
pin 4	pin G8
pin 5	pin G9
pin 8	pin F10

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27045 to the right modal suppression accelerometer, M27045.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-21 TASK 875

D633W103-ARO

Page 298.76
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Modal Suppression Accelerometers.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-R. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect connector DM27045 to the right modal suppression accelerometer, M27045.
 - (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Modal Suppression Accelerometers.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the right modal suppression accelerometer, M27045. These are the tasks:
 - Accelerometer Removal, AMM TASK 27-21-13-000-801
 - Accelerometer Installation, AMM TASK 27-21-13-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Modal Suppression Accelerometers.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

877. Accelerometer Signals from the Modal Suppression Accelerometers Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17025.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary flight Controls, System Test, Modal Suppression Accelerometers.
 - (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-21 TASKS 875-877

D633W103-ARO

Page 298.77
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

879. Vibration Noise During On-Ground Rudder Movement - Fault Isolation

A. Description

Loud grinding or growling noise in the aft galley when the rudder is being moved while the plane is on the ground.

B. Possible Causes

- (1) Digital nature of the primary flight control system (PFCS) signals and the electrohydraulic servovalve (EHSV) responses to these PFCS commands.
 - (a) In normal and secondary modes, the PFC calculates a new rudder command every 12.5 milliseconds, and the command to the actuator is a series of small discrete steps instead of a smooth ramp.
 - (b) The (EHSV) on the actuator responds to these commands and results in a ripple effect in the hydraulic lines.
 - (c) This ripple effect generates the noise and it is amplified by the rudder surface, which acts as a sounding board.
- (2) Some other unidentified hydraulic or structural problems.

C. Fault Isolation Procedure

- (1) Do these steps:
 - (a) Pressurize the hydraulic power systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (b) Put the primary flight computer disconnect switch in the DISC position.
 - (c) Move the captain's left then right rudder pedals until it touch the floor and release.
 - 1) If you can still hear the noise from the aft section of the airplane, additional inspections are needed to identify the source of the noise.
 - 2) If you do not hear the noise, no further action is required.

NOTE: This condition is considered normal due to the digital nature of the PFCS signals and the EHSV responses to these commands.

- (d) Put the primary flight computer disconnect switch back to the position before you start this test.
- (e) Remove the hydraulic systems power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

————— **END OF TASK** —————

880. Noise and Vibration During On-Ground Rudder Control Surface Movement - Fault Isolation

A. Description

Abrupt noise in the aft galley or the fuselage shudders when the rudder is moved quickly through large position changes while the plane is on the ground.

B. Possible Causes

- (1) Sudden changes in hydraulic fluid volume and flow as the PCU starts to move quickly and then suddenly stops.
 - (a) When the rudder is moved quickly, a large amount of hydraulic fluid is demanded by the PCUs.
 - (b) When the rudder stops moving, the hydraulic flow abruptly stops, causing an increase in pressure and subsequent oscillations in the hydraulic lines (water hammer effect). This causes a large banging noise and some vibrations.

EFFECTIVITY
ARO ALL

27-21 TASKS 879-880

D633W103-ARO

Page 298.78
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) The amplitude of the noise is proportional to the commanded rate for the rudder. If the rudder is moved slowly, the pressure oscillations are lower and the banging noise is reduced.
- (2) Some other unidentified hydraulic or structural problems.

C. Fault Isolation Procedure

- (1) Do these steps:
 - (a) Pressurize the main hydraulic power system. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801
 - (b) Slowly move the captain's left rudder pedal until it touches the floor.
 - (c) Slowly release the captain's left rudder pedal to the neutral position.
 - (d) Slowly move the captain's right rudder pedal until it touches the floor.
 - (e) Slowly release the captain's right rudder pedal to the neutral position.
- (2) If you can still hear the noise or feel a vibration when the rudder pedals is moved at the slow speed, additional inspections of the rudder PCUs and surrounding structure may be necessary.
- (3) If you do not hear the noise or feel a vibration when the rudder pedals are moved at the slow speed, no further action is required.

NOTE: If the noises and vibrations only occur when the rudder is moved quickly, then this is acceptable as normal system operation.
- (4) Remove the hydraulic system power. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-21 TASK 880

D633W103-ARO

Page 298.79
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

801. Left Outboard Elevator PCU Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10101.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-10101, 27-10103, 27-10201, 27-10301, 27-10303, 27-10401, 27-10501, 27-10503, 27-10510, and 27-10512. If there are more than six of the following maintenance messages show, then the failures could be caused by a poor performing hydraulic pump. Perform the following procedure to isolate the failure. Turn off the left ACMP and turn on the left EDP. Cycle the flight control surfaces; spoilers, ailerons, elevators and rudder and monitor hydraulic pressure indication and check for faults. If faults are present, check the left EDP, left ACMP, filters, and check valves for FOD. Repeat test with left ACMP on and left EDP off.

- (3) Repeat the above procedure for the following maintenance messages: 27-10103, 27-10201, 27-10301, 27-10303, 27-10401, 27-10501, 27-10503, 27-10510, and 27-10512

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

EFFECTIVITY
ARO ALL

27-31 TASK 801

D633W103-ARO

Page 201
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Disconnect connector DM27111A from the left outboard elevator power control unit (LOB PCU).
- (d) Do a wiring check between these pins of connector DM27121AC at the E1-5 and connector DM27111A at the LOB PCU (WDM 27-31-11):

DM27121AC	DM27111A
pin A14	pin 9
pin B14	pin 8

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27111A to the PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE-L1, M27121 for ACE-C, M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-31 TASK 801

D633W103-ARO

Page 202
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left outboard elevator PCU, M27111. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

802. Left Elevator Surface Actuation Confidence Test Failed - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10124, 27-10452, 27-10455, 27-10458, 27-10461, 27-10466.

B. Initial Evaluation

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-16048, 27-11104, 27-10128, 27-10130, 27-27-10120, 27-10121, 27-10124. If more than one of these messages show, then do the fault isolation procedures in this sequence: 27-16048, 27-11104, 27-10128, 27-10130, 27-27-10120, 27-10121, 27-10124. For example, if 27-16048 shows, then do its procedure first.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Examine the two elevator power control units (PCU) for the left elevator to see if they are mechanically disconnected from the elevator or the stabilizer.
 - (a) If one of the elevator PCUs is disconnected or damaged, then do these steps:

EFFECTIVITY
ARO ALL

27-31 TASKS 801-802

D633W103-ARO

Page 203
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Replace the applicable elevator PCU, M27111 or M27112. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - a) Repair or replace all other damaged parts.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
- (2) Do this test of the outboard PCU for the left elevator:
- (a) Set the C and R FLT CONTROL HYD VALVE PWR switches for the TAIL to the SHUTOFF position.
 - (b) Set the L FLT CONTROL HYD VALVE PWR switch for the TAIL to the NORM position.



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (c) For the left hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (d) Find the two ELEVATOR POSITION indications that are on the left side of the flight controls maintenance page 2 (on the MFD). Monitor the bottom of the two indications. At the same time look at the elevator to see if it moves.
- (e) Push and hold one of the control columns fully forward.
 - 1) Look at the left elevator and make sure it is fully down.

NOTE: You do not need to measure the elevator movement. It is satisfactory if you can see that it moved down.
 - 2) Make sure the ELEVATOR POSITION indication shows -2.80 to -3.20.
 - 3) Make sure the ELEVATOR DELTA PRESS indication (the bottom one on the left side of the maintenance page) shows +1700 to +3500.

NOTE: This shows that the elevator PCU is fully retracted.
- (f) Pull and hold one of the control columns fully aft.
 - 1) Look at the left elevator and make sure it is fully up.

NOTE: You do not need to measure the elevator movement. It is satisfactory if you can see that it moved up.
 - 2) Make sure the ELEVATOR POSITION indication shows +3.30 to +3.70.
 - 3) Make sure the ELEVATOR DELTA PRESS indication (the bottom one on the left side of the maintenance page) shows -1700 to -3500.
- (g) Release the control column.
 - 1) Make sure the left elevator is in the neutral position.

NOTE: You do not need to measure the elevator position. It is satisfactory if you can see that it is approximately level.
 - 2) Make sure the ELEVATOR POSITION indication shows -0.10 to +0.10.

EFFECTIVITY
ARO ALL

27-31 TASK 802

D633W103-ARO

Page 204
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (h) If the elevator or the indications did not operate correctly (as specified in the steps above), then do these steps:
 - 1) Replace the outboard PCU for the left elevator, M27111. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
- (i) If the elevator and the indications operated correctly, then continue.
- (3) Do this test of the inboard PCU on the left elevator:
 - (a) Set the L and R FLT CONTROL HYD VALVE PWR switches for the TAIL to the SHUTOFF position.
 - (b) Set the C FLT CONTROL HYD VALVE PWR switch for the TAIL to the NORM position.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (c) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (d) Find the two ELEVATOR POSITION indications that are on the left side of the flight controls maintenance page 2 (on the MFD). Monitor the top of the two indications. At the same time look at the elevator to see if it moves.
- (e) Push and hold one of the control columns fully forward.
 - 1) Look at the left elevator and make sure it is fully down.

NOTE: You do not need to measure the elevator movement. It is satisfactory if you can see that it moved down.

The right elevator will not move.
 - 2) Make sure the ELEVATOR POSITION indication shows -2.80 to -3.20.
 - 3) Make sure the ELEVATOR DELTA PRESS indication (the top one on the left side of the maintenance page) shows +1700 to +3500.
- (f) Pull and hold one of the control columns fully aft.
 - 1) Look at the left elevator and make sure it is fully up.

NOTE: You do not need to measure the elevator movement. It is satisfactory if you can see that it moved up.
 - 2) Make sure the ELEVATOR POSITION indication shows +3.30 to +3.70.
 - 3) Make sure the ELEVATOR DELTA PRESS indication (the top one on the left side of the maintenance page) shows -1700 to -3500.
- (g) Release the control column.

EFFECTIVITY
ARO ALL

27-31 TASK 802

D633W103-ARO

Page 205
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Make sure the left elevator is in the neutral position.
NOTE: You do not need to measure the elevator position. It is satisfactory if you can see that it is approximately level.
- 2) Make sure the ELEVATOR POSITION indication shows -0.10 to +0.10.
- (h) If the elevator or the indications did not operate correctly (as specified in the steps above), then do these steps:
 - 1) Replace the inboard PCU on the left elevator, M27112. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (i) If the elevator and the indications operated correctly, then continue.
- (4) Replace the outboard PCU on the left elevator, M27111. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801NOTE: The steps above try to find which PCU is bad. But, the steps cannot find all of the possible problems that the PCUs can have. Thus, if you did not find a problem when you did the steps above, do these steps to replace the PCUs.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the inboard PCU on the left elevator, M27112. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

803. Elevator Feel Actuator (left) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10702.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do the following steps:
 - (a) Disconnect connector DM27020 from the left elevator feel actuator.

EFFECTIVITY
ARO ALL

27-31 TASKS 802-803

D633W103-ARO

Page 206
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Clean the pins of the connector.
- (c) Re-connect connector DM27020.
- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - 1) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - 2) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27020 from the left elevator feel actuator.
- (d) Do a wiring check between these pins of connector DM27122AA (for ACE-L2) and connector DM27020 (at the elevator feel actuator) (WDM 27-31-15):

DM27122AA	DM27020
pin E4	pin 4
pin D4	pin 6
pin A4	pin 9
pin C4	pin 10
pin B4	pin 2

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-31 TASK 803

D633W103-ARO

Page 207
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-connect connector DM27020 to the left elevator feel actuator.
- 3) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
- (4) Replace the left elevator feel actuator, M27020. These are the tasks:
 - Elevator Feel Actuators Removal, AMM TASK 27-31-07-000-801
 - Elevator Feel Actuators - Installation, AMM TASK 27-31-07-400-801
- (a) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

804. Elevator Power Control Unit (Left Outboard) EHV Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11107.

EFFECTIVITY
ARO ALL

27-31 TASKS 803-804

D633W103-ARO

Page 208
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27111A from the outboard power control unit (PCU) on the left elevator.
- (d) Do a wiring check between these pins of connector DM27121AA (for ACE-L1) and connector DM27111A (at the elevator PCU) (WDM 27-31-11):

DM27121AA	DM27111A
pin D14	pin 3
pin D15	pin 11

- (e) Check for shorts to ground for these pins:

DM27111A	GROUND
pin 3	ground
pin 11	ground

- (f) Check for shorts between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 804

D633W103-ARO

Page 209
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

DM27111A	DM27111A
pin 3	pin 1
pin 3	pin 2
pin 3	pin 5
pin 3	pin 7
pin 3	pin 8
pin 3	pin 9
pin 3	pin 11
pin 3	pin 12
pin 3	pin 13
pin 3	pin 15
pin 3	pin 16
pin 3	pin 17
pin 3	pin 18
pin 3	pin 19
pin 11	pin 1
pin 11	pin 2
pin 11	pin 5
pin 11	pin 7
pin 11	pin 8
pin 11	pin 9
pin 11	pin 12
pin 11	pin 13
pin 11	pin 15
pin 11	pin 16
pin 11	pin 17
pin 11	pin 18
pin 11	pin 19

- (g) Disconnect connector DM27112B.
(h) Check for shorts between these pins:

DM27111A	DM27112B
pin 3	pin 2
pin 3	pin 3
pin 11	pin 2
pin 11	pin 3

- (i) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27111A to the outboard PCU on the left elevator.
 - 3) Re-connect connector DM27112B.
 - 4) Re-install ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 804

D633W103-ARO

Page 210
Sep 05/2014



777-200/300 FAULT ISOLATION MANUAL

- 5) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.

- a) If the maintenance message does not show on the ground test display, you corrected the fault.

- (j) If you do not find a problem with the wiring, then continue.

- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Re-connect connector DM27111A to the outboard PCU on the left elevator.

- (b) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

- 2) If the maintenance message shows on the ground test display, then continue.

- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.

- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)

EFFECTIVITY
ARO ALL

27-31 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 211
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the outboard PCU on the left elevator, M27111. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

805. Elevator Power Control Unit (Left Outboard) Delta Pressure Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11111.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

EFFECTIVITY
ARO ALL

27-31 TASKS 804-805

D633W103-ARO

Page 212
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27111A from the outboard power control unit (PCU) on the left elevator.
- (d) Do a wiring check between these pins of connector DM27121AC (for ACE-L1) and connector DM27111A (at the elevator PCU) (WDM 27-31-11):

DM27121AC	DM27111A
pin A12	pin 5
pin B12	pin 15

- (e) Check for short to ground for these pins:

DM27111A	GROUND
pin 5	ground
pin 15	ground

- (f) Check for a short between these pins:

DM27111A	DM27111A
pin 5	pin 1
pin 5	pin 2
pin 5	pin 3
pin 5	pin 7
pin 5	pin 8
pin 5	pin 9
pin 5	pin 11
pin 5	pin 12
pin 5	pin 13
pin 5	pin 15
pin 5	pin 16
pin 5	pin 17
pin 5	pin 18
pin 5	pin 19
pin 15	pin 1
pin 15	pin 2
pin 15	pin 3
pin 15	pin 7
pin 15	pin 8
pin 15	pin 9
pin 15	pin 11
pin 15	pin 12
pin 15	pin 13
pin 15	pin 16
pin 15	pin 17
pin 15	pin 18
pin 15	pin 19

- (g) Disconnect connector DM27112B.

EFFECTIVITY
ARO ALL

27-31 TASK 805

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL

- (h) Check for a short between these pins:

DM27111A	DM27112B
pin 5	pin 2
pin 5	pin 3
pin 15	pin 2
pin 15	pin 3

- (i) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27111A to the outboard PCU on the left elevator.
- 3) Re-connect connector DM27112B.
- 4) Re-install ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- 7) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (j) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect connector DM27111A to the outboard PCU on the left elevator.
 - (b) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU

EFFECTIVITY
ARO ALL

27-31 TASK 805

D633W103-ARO

Page 214
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the outboard PCU on the left elevator, M27111. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

806. Left Outboard Elevator PCU Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11115.

EFFECTIVITY
ARO ALL

27-31 TASKS 805-806

D633W103-ARO

Page 215
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation wiring for the power control unit (PCU) transducers:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27111A from the left outboard (LOB) elevator PCU.
- (d) Do a wiring check between these pins of connector DM27121AC at the E1-5 shelf and connector DM27111A at the LOB PCU (WDM 27-31-11):

EFFECTIVITY
ARO ALL

27-31 TASK 806

D633W103-ARO

Page 216
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

DM27121AC	DM27111A
pin D12	pin 18
pin E14	pin 12
pin E15	pin 13

- (e) Check for a short to ground for these pins:

DM27111A	GROUND
pin 12	ground
pin 13	ground
pin 18	ground

- (f) Check for short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 806

D633W103-ARO

Page 217
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

DM27111A	DM27111A
pin 12	pin 1
pin 12	pin 2
pin 12	pin 3
pin 12	pin 5
pin 12	pin 7
pin 12	pin 8
pin 12	pin 9
pin 12	pin 11
pin 12	pin 13
pin 12	pin 15
pin 12	pin 16
pin 12	pin 17
pin 12	pin 18
pin 12	pin 19
pin 13	pin 1
pin 13	pin 2
pin 13	pin 3
pin 13	pin 5
pin 13	pin 7
pin 13	pin 8
pin 13	pin 9
pin 13	pin 11
pin 13	pin 15
pin 13	pin 16
pin 13	pin 17
pin 13	pin 19
pin 18	pin 1
pin 18	pin 2
pin 18	pin 3
pin 18	pin 5
pin 18	pin 7
pin 18	pin 8
pin 18	pin 9
pin 18	pin 11
pin 18	pin 15
pin 18	pin 16
pin 18	pin 17
pin 18	pin 19

- (g) Disconnect connector DM27112B.
- (h) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 806

D633W103-ARO

Page 218
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27111A	DM27112B
pin 12	pin 2
pin 12	pin 3
pin 13	pin 2
pin 13	pin 3
pin 18	pin 2
pin 18	pin 3

- (i) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27111A to the PCU.
 - 3) Re-connect connector DM27112B.
 - 4) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (j) If you do not find a problem with the wiring, then continue.
- (k) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (l) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM

EFFECTIVITY
ARO ALL

27-31 TASK 806

D633W103-ARO

Page 219
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left outboard elevator PCU, M27111. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

807. Column Position Transducer (Left 1) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12100.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:

EFFECTIVITY
ARO ALL

27-31 TASKS 806-807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

- (3) Do this check of the excitation and feedback wiring:

- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27134 for column position transducer L1.
- (d) Do a wiring check between these pins of connector DM27121AA (for ACE-L1) and connector DM27134 (for the position transducer) (WDM 27-31-11):

<u>DM27121AA</u>	<u>DM27134</u>
pin A10	pin 8
pin A11	pin 9
pin B11	pin 1
pin C10	pin 6
pin C11	pin 5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27134 for the position transducer.
 - 3) Re-install ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU

EFFECTIVITY
ARO ALL

27-31 TASK 807

D633W103-ARO

Page 221
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Replace column position transducer L1, M27134. These are the tasks:
- Column Position Transducers Removal, AMM TASK 27-31-04-000-801
 - Column Position Transducers Installation, AMM TASK 27-31-04-400-801
- (a) Re-install ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Re-connect connector DM27134 for the position transducer.
- (c) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

808. Column Position Transducer (Left 1) Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12103.

EFFECTIVITY
ARO ALL

27-31 TASKS 807-808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 222
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust (rig) the left 1 column position transducer, M27134. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.
 - (a) If you could adjust the column position transducer to the specified tolerances shown in AMM 27-31-00/501, then do these steps:
 - 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
 - (b) If you could not adjust the column position transducer to the specified tolerances shown in AMM 27-31-00/501, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27134 for column position transducer L1.
- (d) Do a wiring check between these pins of connector DM27121AA (for ACE-L1) and connector DM27134 (for the position transducer) (WDM 27-31-11):

DM27121AA	DM27134
pin C10	pin 6
pin C11	pin 5

- (e) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-31 TASK 808

D633W103-ARO

Page 223
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-connect connector DM27134 for the position transducer.
- 3) Re-install ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27134 for the position transducer.
- (3) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left 1 column position transducer, M27134. These are the tasks:
 - Column Position Transducers Removal, AMM TASK 27-31-04-000-801
 - Column Position Transducers Installation, AMM TASK 27-31-04-400-801

EFFECTIVITY
ARO ALL

27-31 TASK 808

D633W103-ARO

Page 224
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

809. Column Position Transducers Have Multiple Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-12106, 27-12113.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.

————— END OF TASK —————

810. Column Position Signals from Column Position Transducers (Left) and Column Position Transducers (Right) Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12114.

B. Initial Evaluation

NOTE: This fault only occurs when the airplane is on the ground. It occurs if the transducers for the Captain's column are in a different position than the transducers for the First Officer's column. This fault can occur if you hold one control column in a different position than the other control column for more than 0.24 seconds. A mechanical problem can also cause this fault.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this test of the captain's control column:
 - (a) Monitor the three CAPT COLUMN POSITION indications on the flight controls maintenance page 1 (on the MFD).
 - (b) Move the captain's control column through its full travel (fully forward, then fully aft, then released). Make sure that the three indications show these values:
 - 1) -1.30 to -1.50 when the column is fully forward.

EFFECTIVITY
ARO ALL

27-31 TASKS 808-810

D633W103-ARO

Page 225
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) +1.30 to +1.50 when the column is fully aft.
- 3) -0.03 to +0.03 when the column is released.
- (c) If you find a problem, then do these steps:
 - 1) Examine these components, on the captain's side, for damaged parts, loose parts, or for objects that prevent full travel. Replace those components that have damage.
 - a) The column torque tubes. These are the tasks:
 - Column Torque Tube Removal, AMM TASK 27-31-02-000-801
 - Column Torque Tube Installation, AMM TASK 27-31-02-400-801
 - b) The pushrods
 - c) The elevator feel unit. These are the tasks:
 - Elevator Feel and Centering Mechanism Removal, AMM TASK 27-31-06-000-801
 - Elevator Feel and Center Mechanism Installation, AMM TASK 27-31-06-400-801
 - d) The column breakout mechanism. These are the tasks:
 - Column Breakout Mechanism Removal, AMM TASK 27-31-03-000-801
 - Column Breakout Mechanism Installation, AMM TASK 27-31-03-400-801
 - 2) Adjust (rig) the captain's control column. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.
 - 3) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you did not find a problem, then continue.
- (2) Do this test of the first officer's control column:
 - (a) Monitor the three F/O COLUMN POSITION indications on the flight controls maintenance page 1 (on the MFD).
 - (b) While you move the first officer's control column through its full travel (fully forward, then fully aft, then released), make sure that the three indications show these values:
 - (c) Move the first officer's control column through its full travel (fully forward, then fully aft, then released). Make sure that the three indications show these values:
 - 1) -1.30 to -1.50 when the column is fully forward.
 - 2) +1.30 to +1.50 when the column is fully aft.
 - 3) -0.03 to +0.03 when the column is released.
 - (d) If you find a problem, then do these steps:
 - 1) Examine these components, on the first officer's side, for damaged parts, loose parts, or for objects that prevent full travel. Replace those components that have damage.
 - a) The column torque tubes. These are the tasks:
 - Column Torque Tube Removal, AMM TASK 27-31-02-000-801
 - Column Torque Tube Installation, AMM TASK 27-31-02-400-801
 - b) The pushrods.

EFFECTIVITY
ARO ALL

27-31 TASK 810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 226
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) The elevator feel unit. These are the tasks:
 - Elevator Feel and Centering Mechanism Removal, AMM TASK 27-31-06-000-801
 - Elevator Feel and Center Mechanism Installation, AMM TASK 27-31-06-400-801
- d) The column breakout mechanism. These are the tasks:
 - Column Breakout Mechanism Removal, AMM TASK 27-31-03-000-801
 - Column Breakout Mechanism Installation, AMM TASK 27-31-03-400-801
- 2) Adjust (rig) the first officer's control column. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802
- 3) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- 4) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you did not find a problem, then continue.
- (3) Examine the column breakout mechanism for damage or a missing spring (there are 2 springs, side-by-side).
 - (a) If you find a problem with the column breakout mechanism, then do these steps:
 - 1) Replace or repair the column breakout mechanism. These are the tasks:
 - Column Breakout Mechanism Removal, AMM TASK 27-31-03-000-801
 - Column Breakout Mechanism Installation, AMM TASK 27-31-03-400-801
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (b) If you do not find a problem with the column breakout mechanism, then continue.
- (4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.

NOTE: If the elevator feel actuators are stuck in the high force position, then when you move one control column to full travel the other will not follow it.

 - (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - (b) If no maintenance message shows on the ground test display, then continue.
- (5) If the steps above did not help you find the problem, then do this check of all of the mechanical components:
 - (a) Examine these components, on the captain's and the first officer's side, for damaged parts, loose parts, or for objects that prevent full travel. Replace those components that have damage.
 - 1) The column torque tubes. These are the tasks:
 - Column Torque Tube Removal, AMM TASK 27-31-02-000-801
 - Column Torque Tube Installation, AMM TASK 27-31-02-400-801

EFFECTIVITY
ARO ALL

27-31 TASK 810

D633W103-ARO

Page 227
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) The pushrods.
- 3) The elevator feel unit. These are the tasks:
 - Elevator Feel and Centering Mechanism Removal, AMM TASK 27-31-06-000-801
 - Elevator Feel and Center Mechanism Installation, AMM TASK 27-31-06-400-801
- (b) Adjust (rig) the control columns. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.
- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

811. Elevator PCU (Left Outboard) Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16004.

B. Initial Evaluation

NOTE: This maintenance message can only occur when you do the Left Elevator Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: "Select NO if you cannot align them". If you select YES, then this maintenance message will not show as a failure.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Alignment.

NOTE: AMM 27-31-00/501 contains information that will help you do this ground test.

 - (a) If you could adjust the elevator correctly during the ground test, then you corrected the fault.
 - (b) If you could not adjust the elevator correctly during the ground test, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Alignment.
 - (b) If you could adjust the elevator correctly during the ground test, then you corrected the fault.
 - (c) If you could not adjust the elevator correctly during the ground test, then continue.
- (4) Replace the left outboard elevator PCU, M27111. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Alignment.

EFFECTIVITY
ARO ALL

27-31 TASKS 810-811

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 228
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If you could adjust the elevator correctly during the ground test, then you corrected the fault.

————— END OF TASK —————

812. Elevator Feel Actuator (right) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10703.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do the following steps:
- Disconnect connector DM27021 from the right elevator feel actuator.
 - Clean the pins of the connector.
 - Re-connect connector DM27021.
 - Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation and feedback wiring:
- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

EFFECTIVITY
ARO ALL

27-31 TASKS 811-812

D633W103-ARO

Page 229
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Remove ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27021 from the right elevator feel actuator.
- (d) Do a wiring check between these pins of connector DM27321AA (for ACE-C) and connector DM27021 (at the elevator feel actuator) (WDM 27-31-15):

DM27321AA	DM27021
pin E4	pin 4
pin D4	pin 6
pin A4	pin 9
pin C4	pin 10
pin B4	pin 2

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27021 to the right elevator feel actuator.
 - 3) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Replace the right elevator feel actuator, M27021. These are the tasks:
 - Elevator Feel Actuators Removal, AMM TASK 27-31-07-000-801
 - Elevator Feel Actuators - Installation, AMM TASK 27-31-07-400-801
- (a) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU

EFFECTIVITY
ARO ALL

27-31 TASK 812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 230
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

813. Elevator Power Control Unit (Left Inboard) EHV Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11106.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

EFFECTIVITY
ARO ALL

27-31 TASKS 812-813

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 231
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27112A from the inboard power control unit (PCU) on the left elevator.
- (d) Do a wiring check between these pins of connector DM27321AA (for ACE-c) and connector DM27112A (at the elevator PCU) (WDM 27-31-12):

DM27321AA	DM27112A
pin D14	pin 3
pin D15	pin 11

- (e) Check for a short to ground for these pins:

DM27112A	GROUND
pin 3	ground
pin 11	ground

- (f) Check for a short between these pins:

DM27112A	DM27112A
pin 3	pin 1
pin 3	pin 2
pin 3	pin 5
pin 3	pin 7
pin 3	pin 8
pin 3	pin 9
pin 3	pin 11
pin 3	pin 12
pin 3	pin 13
pin 3	pin 15
pin 3	pin 16
pin 3	pin 17
pin 3	pin 18
pin 3	pin 19
pin 11	pin 1
pin 11	pin 2
pin 11	pin 5
pin 11	pin 7
pin 11	pin 8
pin 11	pin 9
pin 11	pin 12
pin 11	pin 13
pin 11	pin 15
pin 11	pin 16
pin 11	pin 17
pin 11	pin 18
pin 11	pin 19

- (g) Disconnect connector DM27111B.

EFFECTIVITY
ARO ALL

27-31 TASK 813

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL

- (h) Check for a short between these pins:

DM27112A	DM27111B
pin 3	pin 2
pin 3	pin 3
pin 3	pin 5
pin 3	pin 6
pin 11	pin 2
pin 11	pin 3
pin 11	pin 5
pin 11	pin 6

- (i) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27112A to the inboard PCU on the left elevator.
- 3) Re-connect connector DM27111B.
- 4) Re-install ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- 5) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.

- a) If the maintenance message does not show on the ground test display, you corrected the fault.

- (j) If you do not find a problem with the wiring, then continue.

- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Re-connect connector DM27112A to the inboard PCU on the left elevator.

- (b) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM

EFFECTIVITY
ARO ALL

27-31 TASK 813

D633W103-ARO

Page 233
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	CBB6-C	ELEV FEEL (C)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the inboard PCU on the left elevator, M27112. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

— END OF TASK —

814. Elevator Power Control Unit (Right Inboard) EHV Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11108.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-31 TASKS 813-814

D633W103-ARO

Page 234
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

(1) Do this check of the feedback wiring:

- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27212A from the inboard power control unit (PCU) on the right elevator.
- (d) Do a wiring check between these pins of connector DM27221AA (for ACE-R) and connector DM27212A (at the elevator PCU) (WDM 27-31-14):

DM27221AA	DM27212A
pin D14	pin 3
pin D15	pin 11

- (e) Check for a short to ground for these pins:

DM27212A	GROUND
pin 3	ground
pin 11	ground

- (f) Check for short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 814

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 235
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

DM272712A	DM272712A
pin 3	pin 1
pin 3	pin 2
pin 3	pin 5
pin 3	pin 7
pin 3	pin 8
pin 3	pin 9
pin 3	pin 11
pin 3	pin 12
pin 3	pin 13
pin 3	pin 15
pin 3	pin 16
pin 3	pin 17
pin 3	pin 18
pin 3	pin 19
pin 11	pin 1
pin 11	pin 2
pin 11	pin 5
pin 11	pin 7
pin 11	pin 8
pin 11	pin 9
pin 11	pin 12
pin 11	pin 13
pin 11	pin 15
pin 11	pin 16
pin 11	pin 17
pin 11	pin 18
pin 11	pin 19

- (g) Disconnect connector DM27211B.
(h) Check for a short between these pins:

DM27212A	DM27211B
pin 3	pin 2
pin 3	pin 3
pin 3	pin 5
pin 3	pin 6
pin 11	pin 2
pin 11	pin 3
pin 11	pin 5
pin 11	pin 6

- (i) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27212A to the inboard PCU on the right elevator.
 - 3) Re-connect connector DM27211B.

EFFECTIVITY
ARO ALL

27-31 TASK 814

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 236
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - j) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect connector DM27212A to the inboard PCU on the right elevator.
 - (b) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.

EFFECTIVITY
ARO ALL

27-31 TASK 814

D633W103-ARO

Page 237
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the inboard PCU on the right elevator, M27212. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

815. Elevator Power Control Unit (Right Outboard) EHV Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11109.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

EFFECTIVITY
ARO ALL

27-31 TASKS 814-815

D633W103-ARO

Page 238
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27211A from the outboard power control unit (PCU) on the right elevator.
- (d) Do a wiring check between these pins of connector DM27122AC (for ACE-L2) and connector DM27211A (at the elevator PCU) (WDM 27-31-13):

DM27122AC	DM27211A
pin D14	pin 3
pin D15	pin 11

- (e) Check for a short to ground for these pins:

DM27211A	GROUND
pin 3	ground
pin 11	ground

- (f) Check for short between these pins:

DM272711A	DM272711A
pin 3	pin 1
pin 3	pin 2
pin 3	pin 5
pin 3	pin 7
pin 3	pin 8
pin 3	pin 9
pin 3	pin 11
pin 3	pin 12
pin 3	pin 13
pin 3	pin 15
pin 3	pin 16
pin 3	pin 17
pin 3	pin 18
pin 3	pin 19
pin 11	pin 1
pin 11	pin 2
pin 11	pin 5
pin 11	pin 7
pin 11	pin 8
pin 11	pin 9
pin 11	pin 12
pin 11	pin 13
pin 11	pin 15
pin 11	pin 16
pin 11	pin 17
pin 11	pin 18
pin 11	pin 19

- (g) Disconnect connector DM27212B.

EFFECTIVITY
ARO ALL

27-31 TASK 815

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL

- (h) Check for a short between these pins:

DM27211A		DM27212B	
pin 3	.....	pin 2	
pin 3	.....	pin 3	
pin 11	.....	pin 2	
pin 11	.....	pin 3	

- (i) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27211A to the outboard PCU on the right elevator.
- 3) Re-connect connector DM27212B.
- 4) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (j) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

- (k) If you do not find a problem with the wiring, then continue.

- (2) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Re-connect connector DM27211A to the outboard PCU on the right elevator.
- (b) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 815

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 240
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the outboard PCU on the right elevator, M27211. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

816. Column Position Transducer (Left 2) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12101.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.

EFFECTIVITY
ARO ALL

27-31 TASKS 815-816

D633W103-ARO

Page 241
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation and feedback wiring:
- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27135 for column position transducer L2.
- (d) Do a wiring check between these pins of connector DM27321AA (for ACE-C) and connector DM27135 (for the position transducer) (WDM 27-31-12):

DM27321AA	DM27135
pin A10	pin 8
pin A11	pin 9
pin B11	pin 1
pin C10	pin 6
pin C11	pin 5

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27135 for the position transducer.
 - 3) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.

EFFECTIVITY
ARO ALL

27-31 TASK 816

D633W103-ARO

Page 242
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Replace column position transducer L2, M27135. These are the tasks:
 - Column Position Transducers Removal, AMM TASK 27-31-04-000-801
 - Column Position Transducers Installation, AMM TASK 27-31-04-400-801
- (a) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Re-connect connector DM27135 for the position transducer.
- (c) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

817. Column Position Transducer (Left 3) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12102.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

EFFECTIVITY
ARO ALL

27-31 TASKS 816-817

D633W103-ARO

Page 243
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation and feedback wiring:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27136 for column position transducer L3.
- (d) Do a wiring check between these pins of connector DM27221AA (for ACE-R) and connector DM27136 (for the position transducer) (WDM 27-31-14):

DM27221AA	DM27136
pin H9	pin 1
pin J8	pin 9
pin J9	pin 5
pin K8	pin 8
pin K9	pin 6

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27136 for the position transducer.
 - 3) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM

EFFECTIVITY
ARO ALL

27-31 TASK 817

D633W103-ARO

Page 244
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Replace column position transducer L3, M27136. These are the tasks:
- Column Position Transducers Removal, AMM TASK 27-31-04-000-801
 - Column Position Transducers Installation, AMM TASK 27-31-04-400-801
- (a) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Re-connect connector DM27136 for the position transducer.
- (c) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

818. Column Position Transducer (Left 2) Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12104.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-31 TASKS 817-818

D633W103-ARO

Page 245
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust (rig) the left 2 column position transducer, M27135. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.
- (a) If you could adjust the column position transducer to the specified tolerances shown in AMM 27-31-00/501, then do these steps:
- 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (b) If you could not adjust the column position transducer to the specified tolerances shown in AMM 27-31-00/501, then continue.
- (2) Do this check of the feedback wiring:
- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27135 for column position transducer L2.
- (d) Do a wiring check between these pins of connector DM27321AA (for ACE-C) and connector DM27135 (for the position transducer) (WDM 27-31-12):

<u>DM27321AA</u>	<u>DM27135</u>
pin C10	pin 6
pin C11	pin 5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27135 for the position transducer.
 - 3) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 818

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 246
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27135 for the position transducer.
- (3) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left 2 column position transducer, M27135. These are the tasks:
- Column Position Transducers Removal, AMM TASK 27-31-04-000-801
 - Column Position Transducers Installation, AMM TASK 27-31-04-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-31 TASK 818

D633W103-ARO

Page 247
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

819. Column Position Transducer (Left 3) Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12105.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust (rig) the left 3 column position transducer, M27136. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.
 - (a) If you could adjust the column position transducer to the specified tolerances shown in AMM 27-31-00/501, then do these steps:
 - 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
 - (b) If you could not adjust the column position transducer to the specified tolerances shown in AMM 27-31-00/501, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27136 for column position transducer L3.
- (d) Do a wiring check between these pins of connector DM27221AA (for ACE-R) and connector DM27136 (for the position transducer) (WDM 27-31-14):

EFFECTIVITY
ARO ALL

27-31 TASK 819

D633W103-ARO

Page 248
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27221AA

pin J9 pin 5
pin K9 pin 6

DM27136

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27136 for the position transducer.
 - 3) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27136 for the position transducer.
- (3) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 819

D633W103-ARO

Page 249
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left 3 column position transducer, M27136. These are the tasks:
 - Column Position Transducers Removal, AMM TASK 27-31-04-000-801
 - Column Position Transducers Installation, AMM TASK 27-31-04-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

820. Elevator PCU (Left Outboard) Bypass Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10105.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:
 - (a) Open this circuit breaker on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:
 - 1) A7, ELEV PCU
 - (b) Disconnect connector DM27111A from the left outboard elevator power control unit (PCU), M27111.
 - (c) Close this circuit breaker on the PSA-L, M24101, on the E1-6 shelf:

EFFECTIVITY
ARO ALL

27-31 TASKS 819-820

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 250
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- 1) A7, ELEV PCU
- (d) Do a check for 28V DC from pin 16 of connector DM27111A at the left outboard elevator PCU, M27111, to structure ground (WDM 27-31-11).
- (e) If there is not 28V DC at pin 16 of connector DM27111A, then do these steps:
 - 1) Remove the left power supply assembly (PSA-L), M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27111A at the left outboard elevator PCU, M27111, and connector DM24101AD at the E1-6 shelf (WDM 27-31-11):

DM27111A	DM24101AD
pin 16	pin 34
- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27111A.
 - c) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - e) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27111A.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28V DC at pin 16 of connector DM27111A, then continue.
- (4) Do this check of the command wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU

EFFECTIVITY
ARO ALL

27-31 TASK 820

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 251
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27121AC at the E1-5 shelf and connector DM27111A at the left outboard elevator PCU, M27111 (WDM 27-31-11):

DM27121AC	DM27111A
pin A13	pin 17

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27111A.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27111A.
- (5) Do this check of the ground wiring:

EFFECTIVITY
ARO ALL

27-31 TASK 820

D633W103-ARO

Page 252
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (b) Do a wiring check between these pins of connector DM27121AB at the E1-5 shelf and connector DM24101AD at the E1-6 shelf (WDM 27-31-11):

DM27121AB	DM24101AD
pin B4	pin 28

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (6) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.

- (a) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU

EFFECTIVITY
ARO ALL

27-31 TASK 820

D633W103-ARO

Page 253
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

Row	Col	Number	Name
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the left outboard PCU, M27111. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

821. Elevator PCU (Left Outboard) Blocking Solenoid 1 Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10110.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.

EFFECTIVITY
ARO ALL

27-31 TASKS 820-821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 254
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:
 - (a) Open this circuit breaker and attach safety tag on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-L	ELEV PCU

- (b) Disconnect connector DM27111A from the left outboard elevator power control unit (PCU), M27111.
- (c) Remove the safety tag and close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-L	ELEV PCU

- (d) Do a check for 28V DC from pin 2 of connector DM27111A at the left outboard elevator PCU, M27111, to structure ground (WDM 27-31-11).
- (e) If there is not 28V DC at pin 2 of connector DM27111A, then do these steps:
 - 1) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27111A at the left outboard elevator PCU, M27111, and connector DM24101AD at the E1-6 shelf (WDM 27-31-11):

DM27111A	DM24101AD
pin 2	pin 34

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.

EFFECTIVITY
ARO ALL

27-31 TASK 821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 255
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- b) Re-connect connector DM27111A.
 - c) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - e) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then do these steps:
- a) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27111A.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28V DC at pin 2 of connector DM27111A, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27121AC at the E1-5 shelf and connector DM27111A at the left outboard elevator PCU, M27111 (WDM 27-31-11):

DM27121AC

pin B13

DM27111A

pin 1

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-31 TASK 821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 256
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-connect connector DM27111A.
- 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27111A.
- (5) Do this check of the ground wiring:
 - (a) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27121AB at the E1-5 shelf and connector DM24101AD at the E1-6 shelf (WDM 27-31-11):

DM27121AB	DM24101AD
pin B4	pin 28

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU

EFFECTIVITY
ARO ALL

27-31 TASK 821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 257
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (6) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)

EFFECTIVITY
ARO ALL

27-31 TASK 821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 258
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the left outboard PCU, M27111. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

822. Elevator PCU (Left Outboard) Pressure Reducer Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10117.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:

EFFECTIVITY
ARO ALL

27-31 TASKS 821-822

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 259
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open this circuit breaker and attach safety tag on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU

- (b) Disconnect connector DM27111B from the left outboard elevator power control unit (PCU), M27111.
- (c) Remove the safety tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU

- (d) Do a check for 28V DC from pin 5 of connector DM27111B at the left outboard elevator PCU, M27111, to structure ground (WDM 27-31-12).
- (e) If there is not 28V DC at pin 5 of connector DM27111B, then do these steps:
- 1) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27111B at the left outboard elevator PCU, M27111, and connector DM24301AD at the E2-6 shelf (WDM 27-31-12):

DM27111B	DM24301AD
pin 5	pin 34

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27111B.
 - c) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - e) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27111B.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.

EFFECTIVITY
ARO ALL

27-31 TASK 822

D633W103-ARO

Page 260
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - f) If there is 28V DC at pin 5 of connector DM27111B, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27111B at the left outboard elevator PCU, M27111 (WDM 27-31-12):

DM27321AC	DM27111B
pin B15	pin 6

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27111B.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 822

D633W103-ARO

Page 261
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27111B.
- (5) Do this check of the ground wiring:
 - (a) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27321AB at the E2-5 shelf and connector DM24301AD at the E2-6 shelf (WDM 27-31-12):

DM27321AB	DM24301AD
pin B4	pin 28

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (6) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU

EFFECTIVITY
ARO ALL

27-31 TASK 822

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 262
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the left outboard elevator PCU, M27111. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

823. Elevator Surface Delta Pressure Signal Difference (left) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10128.

B. Initial Evaluation

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-16048, 27-11104, 27-10128, 27-10130, 27-27-10120, 27-10121, 27-10124. If more than one of these messages show, then do the fault isolation procedures in this sequence: 27-16048, 27-11104, 27-10128, 27-10130, 27-27-10120, 27-10121, 27-10124. For example, if 27-16048 shows, then do its procedure first.

EFFECTIVITY
ARO ALL

27-31 TASKS 822-823

D633W103-ARO

Page 263
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Adjust the left outboard elevator power control unit (PCU), M27111. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Adjust the left inboard elevator PCU, M27112. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (6) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.

EFFECTIVITY
ARO ALL

27-31 TASK 823

D633W103-ARO

Page 264
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the left outboard elevator PCU, M27111. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (9) Replace the left inboard elevator PCU, M27112. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (10) Do this check of the wiring between the ACE-L1 and left outboard elevator PCU:
- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM

EFFECTIVITY
ARO ALL

27-31 TASK 823

D633W103-ARO

Page 265
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27111A from the left outboard elevator PCU, M27111.
- (d) Do a wiring check between these pins of connector DM27121AC at the E1-5 shelf and connector DM27111A at the left outboard elevator PCU, M27111 (WDM 27-31-11):

DM27121AC	DM27111A
pin A12	pin 5
pin B12	pin 15
pin E12	pin 19
pin E13	pin 7

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27111A.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27111A.
- (h) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 823

D633W103-ARO

Page 266
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (i) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (11) Do this check of the wiring between the ACE-C and left inboard elevator PCU:

- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27112A from the left inboard elevator PCU, M27112.
- (d) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27112A at the left inboard elevator PCU, M27112 (WDM 27-31-12):

<u>DM27321AC</u>	<u>DM27112A</u>
pin A12	pin 5
pin B12	pin 15
pin E12	pin 19
pin E13	pin 7

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27112A.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR

EFFECTIVITY
ARO ALL

27-31 TASK 823

D633W103-ARO

Page 267
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

824. Elevator Power Control Unit (Left) Oscillation Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10130.

B. Initial Evaluation

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-16048, 27-11104, 27-10128, 27-10130, 27-27-10120, 27-10121, 27-10124. If more than one of these messages show, then do the fault isolation procedures in this sequence: 27-16048, 27-11104, 27-10128, 27-10130, 27-27-10120, 27-10121, 27-10124. For example, if 27-16048 shows, then do its procedure first.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Oscillation Monitor.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Adjust the left inboard elevator PCU, M27112. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Oscillation Monitor.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-31 TASKS 823-824

D633W103-ARO

Page 268
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) Adjust the left outboard elevator PCU, M27111. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Oscillation Monitor.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Oscillation Monitor.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (6) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Oscillation Monitor.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the left outboard elevator PCU, M27111. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801

EFFECTIVITY
ARO ALL

27-31 TASK 824

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 269
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Oscillation Monitor.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (9) Replace the left inboard PCU, M27112. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Oscillation Monitor.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

825. Elevator Feel Actuator (left) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10700.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do the following steps:
 - (a) Disconnect connector DM27020 from the left elevator feel actuator.
 - (b) Clean the pins of the connector.
 - (c) Re-connect connector DM27020.
 - (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - 1) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - 2) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-31 TASKS 824-825

D633W103-ARO

Page 270
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(3) Do this check of the command and engage wiring:

(a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

(b) Remove ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

(c) Disconnect connector DM27020 from the left elevator feel actuator.

(d) Do a wiring check between these pins of connector DM27122AA (for ACE-L2) and connector DM27020 (at the elevator feel actuator) (WDM 27-31-15):

<u>DM27122AA</u>		<u>DM27020</u>	
pin A3	.....	pin 14	
pin B3	.....	pin 13	
pin C1	.....	pin 15	
pin B1	.....	pin 5	
pin D1	.....	pin 11	
pin D2	.....	pin 12	

(e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27020 to the left elevator feel actuator.
- 3) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.

a) If the maintenance message does not show on the ground test display, you corrected the fault.

(f) If you do not find a problem with the wiring, then continue.

(4) Do this check of the power and ground wiring:

EFFECTIVITY
ARO ALL

27-31 TASK 825

D633W103-ARO

Page 271
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR

- (b) Do a check for 28 VDC from pin 1 (+) to pin 8 (-) of connector DM27020 (the connector for the elevator feel actuator) (WDM 27-31-15).
- (c) If there is not 28 VDC between pins 1 and 8 of DM27020, then do these steps:
- 1) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR

- 2) Repair the power and ground wiring between connector DM27020 and the left power management panel, P110.

NOTE: This maintenance message is not caused by an open circuit breaker. There is a different maintenance message that will show if the circuit breaker is open.

- 3) Re-connect connector DM27020 to the left elevator feel actuator.
- 4) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.

- a) If the maintenance message does not show on the ground test display, you corrected the fault.

- (d) If there is 28 VDC between pins 1 and 8 of DM27020, then continue:

- (5) Replace the left elevator feel actuator, M27020. These are the tasks:

- Elevator Feel Actuators Removal, AMM TASK 27-31-07-000-801
- Elevator Feel Actuators - Installation, AMM TASK 27-31-07-400-801

- (a) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 825

D633W103-ARO

Page 272
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

826. Elevator Power Control Unit (Left Outboard) Ram Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11101.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-31 TASKS 825-826

D633W103-ARO

Page 273
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27111A from the left outboard elevator power control unit (PCU), M27111.
- (d) Do a wiring check between these pins of connector DM27121AC at the E1-5 and connector DM27111A at the left outboard elevator PCU (WDM 27-31-11):

DM27121AC	DM27111A
pin E12	pin 19
pin E13	pin 7

- (e) Check for a short to ground for these pins:

DM27111A	GROUND
pin 7	ground
pin 19	ground

- (f) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 826

D633W103-ARO

Page 274
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

DM27111A	DM27111A
pin 7	pin 1
pin 7	pin 2
pin 7	pin 3
pin 7	pin 5
pin 7	pin 8
pin 7	pin 9
pin 7	pin 11
pin 7	pin 12
pin 7	pin 13
pin 7	pin 15
pin 7	pin 16
pin 7	pin 17
pin 7	pin 18
pin 7	pin 19
pin 19	pin 1
pin 19	pin 2
pin 19	pin 3
pin 19	pin 5
pin 19	pin 8
pin 19	pin 9
pin 19	pin 11
pin 19	pin 12
pin 19	pin 13
pin 19	pin 15
pin 19	pin 16
pin 19	pin 17
pin 19	pin 18

- (g) Disconnect connector DM27112B.
(h) Check for a short between these pins:

DM27111A	DM27112B
pin 7	pin 2
pin 7	pin 3
pin 19	pin 2
pin 19	pin 3

- (i) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27111A.
 - 3) Re-connect connector DM27112B.
 - 4) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 826

D633W103-ARO

Page 275
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.

- If the maintenance message does not show on the ground test display, you corrected the fault.
 - If you do not find a problem with the wiring, then continue.
 - Re-connect connector DM27111A.
 - Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (m) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- If a fault is found, replace the applicable PCU.
 - If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - If a fault is found, repair or replace the applicable wiring.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left outboard elevator PCU, M27111. These are the tasks:

EFFECTIVITY
ARO ALL

27-31 TASK 826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 276
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
- Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

827. Column Force Signals from Column Force Transducers Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-12602, 27-12605.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer.

NOTE: When you do the Column Force Transducer test on the MAT, monitor the COLUMN FORCE indication on maintenance page 1 of the flight controls maintenance pages. When the MAT tells you to move the column fully forward, do not move it fully forward. Alternatively, move the column forward until the COLUMN FORCE indications (on the maintenance page) show 85.0 to 99.0 (hold it in this position for a minimum of 5 seconds). If you move the column fully forward the test will fail.

- (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
- (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.

————— END OF TASK —————

828. Left Outboard Elevator PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15018.

B. Initial Evaluation

- (1) Open this circuit breaker and attach safety tag on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-L	ELEV PCU

- (a) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-31 TASKS 826-828

D633W103-ARO

Page 277
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

(1) Do this check of the power wiring:

- (a) Open this circuit breaker and attach safety tag on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- (c) Remove the PSA-L, M24101, from the E1-6 shelf.
- (d) Disconnect connector DM27111A from the left outboard elevator power control unit (LOB PCU), M27111.
- (e) Do a wiring check between these pins of connector DM27111A for the LOB PCU and connector DM24101AD at the PSA-L (WDM 27-31-11):

DM27111A	DM24101AD
pin 16	pin 34
pin 2	pin 34

- (f) Disconnect connector DM27112B from the left inboard elevator power control unit (LIB PCU), M27111.
- (g) Do a wiring check between these pins of connector DM27112B for the LIB PCU and connector DM24101AD at the PSA-L (WDM 27-31-11):

DM27112B	DM24101AD
pin 3	pin 34
pin 5	pin 34

- (h) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connectors DM27111A and DM27112B to the PCUs.
 - 3) Re-install the PSA-L, M24101.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	26	C24673	L PSA TRU PWR

EFFECTIVITY
ARO ALL

27-31 TASK 828

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 278
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	4	C24675	L PSA BAT PWR

- 5) Remove the safety tag and close this circuit breaker on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-L	PFC BAT INTLK

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (i) If you do not find a problem with the wiring, then continue.
- (2) Measure the resistance between these pins of connector DM27111A on the LOB PCU, M27111 (WDM 27-31-11).
- (a) Pin 2 and pin 1, specified resistance 50-70 ohms.
- (b) Pin 16 and pin 17, specified resistance 65-85 ohms.
- (c) If the resistance is not in the range specified for each pair of pins, then do these steps:
- 1) Replace the left outboard elevator PCU, M27111. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the resistance is in the range specified for each pair of pins, then continue.
- (3) Measure the resistance between these pins of connector DM27112B on the LIB PCU, M27112 (WDM 27-31-11).
- (a) Pin 3 and pin 2, specified resistance 50-70 ohms.
- (b) Pin 5 and pin 6, specified resistance 65-85 ohms.
- (c) If the resistance is not in the range specified for each pair of pins, then do these steps:
- 1) Replace the left inboard elevator PCU, M27112. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the resistance is in the range specified for each pair of pins, then continue.
- (4) Replace the PSA-L, M24101. These are the tasks:
- Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 828

D633W103-ARO

Page 279
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do a wiring check for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

829. Elevator Feel Actuator (Left) Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15034.

B. Initial Evaluation

- (1) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR

- (a) If the circuit breaker opens when you try to close it, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Open.
- (2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - (a) If the maintenance message shows on the ground test display, then do this check:
 - 1) If the circuit breaker is open, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Open.
 - 2) If the circuit breaker stayed closed, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Closed.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure - Circuit Breaker Open

- (1) Do this check of the power wiring:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Disconnect connector D11013P from the left power management panel (P110).

EFFECTIVITY
ARO ALL

27-31 TASKS 828-829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 280
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Disconnect connector DM27020 from the left elevator feel actuator, M27020.
- (d) Do a wiring check between these pins of connector DM27020 at the elevator feel actuator and connector D11013P at the P110 panel (WDM 27-31-15):

DM27020	D11013P
pin 1	pin 3

- (e) Do a wiring check between this pin of connector D11013J at the P110 panel and terminal 2 at this circuit breaker, C27613 (WDM 27-31-15):

C27613	D11013J
term 2	pin 3

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27020 to the elevator feel actuator.
 - 3) Re-connect connector D11013P to the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Replace this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR

(WDM 27-31-15)

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the circuit breaker monitor, R27613 (WDM 27-31-15).

EFFECTIVITY
ARO ALL

27-31 TASK 829

D633W103-ARO

Page 281
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left elevator feel actuator, M27020. These are the tasks:
 - Elevator Feel Actuators Removal, AMM TASK 27-31-07-000-801
 - Elevator Feel Actuators - Installation, AMM TASK 27-31-07-400-801
- (a) Re-connect connector DM27020 to the elevator feel actuator.
- (b) Re-connect connector D11013P to the P110 panel.
- (c) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
- (e) If the maintenance message does not show on the ground test display, you corrected the fault.

D. Fault Isolation Procedure - Circuit Breaker Closed

- (1) Replace this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR

(WDM 27-31-15)

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the circuit breaker monitor, R27613 (WDM 27-31-15).
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 282
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message shows on the ground test display, then continue.

————— **END OF TASK** —————

830. Elevator PCU (Left Inboard) Bypass Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10104.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:
- (a) Open this circuit breaker and attach safety tag on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU

- (b) Disconnect connector DM27112A from the left inboard elevator power control unit (PCU), M27112.
- (c) Remove the safety tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU

EFFECTIVITY
ARO ALL

27-31 TASKS 829-830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 283
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a check for 28V DC from pin 16 of connector DM27112A at the left inboard elevator PCU, M27112, to structure ground (WDM 27-31-11).
- (e) If there is not 28V DC at pin 16 of connector DM27112A, then do these steps:
- 1) Remove the center power supply assembly (PSA-C), M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27112A at the left inboard elevator PCU, M27112, and connector DM24301AD at the E2-6 shelf (WDM 27-31-12):
- | DM27112A | DM24301AD |
|------------------|------------------|
| pin 16 | pin 34 |
- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27112A.
 - c) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - e) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27112A.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28V DC at pin 16 of connector DM27112A, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU

EFFECTIVITY
ARO ALL

27-31 TASK 830

D633W103-ARO

Page 284
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27112A at the left inboard elevator PCU, M27112 (WDM 27-31-12):

DM27321AC	DM27112A
pin A13	pin 17

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27112A.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27112A.
- (5) Do this check of the ground wiring:
 - (a) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27321AB at the E2-5 shelf and connector DM24301AD at the E2-6 shelf (WDM 27-31-12):

EFFECTIVITY
ARO ALL

27-31 TASK 830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 285
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27321AB

pin B4

DM24301AD

pin 28

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (6) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (a) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 286
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the left inboard PCU, M27112. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

831. Elevator Feel Actuator (right) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10701.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do the following steps:
 - (a) Disconnect connector DM27021 from the right elevator feel actuator.
 - (b) Clean the pins of the connector.
 - (c) Re-connect connector DM27021.
 - (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - 1) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - 2) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-31 TASKS 830-831

D633W103-ARO

Page 287
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the right elevator feel actuator, M27021. These are the tasks:
 - Elevator Feel Actuators Removal, AMM TASK 27-31-07-000-801
 - Elevator Feel Actuators - Installation, AMM TASK 27-31-07-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the command and engage wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321, from the E2-5 shelf. To remove it, do this task: Elevator Feel Actuators Removal, AMM TASK 27-31-07-000-801
- (c) Disconnect connector DM27021 from the right elevator feel actuator.
- (d) Do a wiring check between these pins of connector DM27321AA at the E2-5 shelf and connector DM27021 at the elevator feel actuator, M27021 (WDM 27-31-15):

EFFECTIVITY
ARO ALL

27-31 TASK 831

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 288
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27321AA	DM27021
pin D1	pin 11
pin D2	pin 12
pin C1	pin 15
pin B1	pin 5
pin A3	pin 14
pin B3	pin 13

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27021.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (h) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (5) Do this check of the power and ground wiring:
 - (a) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.

EFFECTIVITY
ARO ALL

27-31 TASK 831

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 289
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Do a wiring check between these pins of connector DM24301AD at the E2-6 shelf and connector DM27021 at the elevator feel actuator, M27021 (WDM 27-31-15):

DM24301AD	DM27021
pin 23	pin 8
pin 24	pin 1

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27021.
 - 3) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-connect connector DM27021.
- (6) Replace the PSA-C, M24301. These are the tasks:
- Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

832. Left Elevator PCU Ram Transducer Signal Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11104.

B. Initial Evaluation

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-16048, 27-11104, 27-10128, 27-10130, 27-27-10120, 27-10121, 27-10124. If more than one of these messages show, then do the fault isolation procedures in this sequence: 27-16048, 27-11104, 27-10128, 27-10130, 27-27-10120, 27-10121, 27-10124. For example, if 27-16048 shows, then do its procedure first.

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.

NOTE: If the EICAS status message FLIGHT CONTROL SYS clears during the test steps, ignore the message and continue with the task.

- (a) If one or more maintenance messages show on the ground test display, then do these steps:
- 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.

EFFECTIVITY
ARO ALL

27-31 TASKS 831-832

D633W103-ARO

Page 290
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do a wiring check for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

833. Right Elevator PCU Ram Transducer Signal Disagreement - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11105.

B. Initial Evaluation

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-16049, 27-11105, 27-10129, 27-10131, 27-27-10122, 27-10123, 27-10125. If more than one of these messages show, then do the fault isolation procedures in this sequence: 27-16049, 27-11105, 27-10129, 27-10131, 27-27-10122, 27-10123, 27-10125. For example, if 27-16049 shows, then do its procedure first.

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.

NOTE: If the EICAS status message FLIGHT CONTROL SYS clears during the test steps, ignore the message and continue with the task.

- (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
- (b) If no maintenance message shows on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do a wiring check for obvious electrical faults in the applicable PCU wiring. (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

EFFECTIVITY
ARO ALL

27-31 TASKS 832-833

D633W103-ARO

Page 291
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If a fault is found, replace the applicable PCU.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

834. Column Force Transducer (Left) No. 1 Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12600.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer.

NOTE: When you do the Column Force Transducer test on the MAT, monitor the COLUMN FORCE indication on maintenance page 1 of the flight controls maintenance pages. When the MAT tells you to move the column fully forward, do not move it fully forward. Alternatively, move the column forward until the COLUMN FORCE indications (on the maintenance page) show 85.0 to 99.0 (hold it in this position for a minimum of 5 seconds). If you move the column fully forward the test will fail.

- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the left 1 actuator control electronics (ACE-L1) recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation and feedback wiring:
 - (a) Disconnect connector DM27139A from the left column force transducer, M27139.
 - (b) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU

EFFECTIVITY
ARO ALL

27-31 TASKS 833-834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 292
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector DM27121AA at the E1-5 shelf and connector DM27139A at the left column force transducer, M27139 (WDM 23-31-11):

DM27121AA	DM27139A
pin J13	pin 8
pin J14	pin 9
pin K13	pin 6
pin K14	pin 5
pin K15	pin 1

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27139A.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 834

D633W103-ARO

Page 293
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (h) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (4) Replace the left column force transducer, M27139. These are the tasks:
- Column Force Transducer Removal, AMM TASK 27-31-08-000-801
 - Column Force Transducer Installation, AMM TASK 27-31-08-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

835. Column Force Transducer (left 1) Transducer Signal Out of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16025.

B. Initial Evaluation

NOTE: This message can only occur when you do the Column Force Transducer ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Adjust the left 1 column force transducer, M27139. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer.

NOTE: When you do the Column Force Transducer test on the MAT, monitor the COLUMN FORCE indication on maintenance page 1 of the flight controls maintenance pages. When the MAT tells you to move the column fully forward, do not move it fully forward. Alternatively, move the column forward until the COLUMN FORCE indications (on the maintenance page) show 85.0 to 99.0 (hold it in this position for a minimum of 5 seconds). If you move the column fully forward the test will fail.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Disconnect connector DM27139A from the left column force transducer, M27139.

EFFECTIVITY
ARO ALL

27-31 TASKS 834-835

D633W103-ARO

Page 294
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Remove the left 1 actuator control electronics (ACE-L1), M27121. To remove it, do this task:

- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801

- (d) Do a wiring check between these pins of connector DM27121AA at the E1-5 shelf and connector DM27139A at the left column force transducer, M27139 (WDM 23-31-11):

DM27121AA	DM27139A
pin K13	pin 6
pin K14	pin 5

- (e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27139A.
- 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27139A.

EFFECTIVITY
ARO ALL

27-31 TASK 835

D633W103-ARO

Page 295
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left column force transducer, M27139. These are the tasks:
- Column Force Transducer Removal, AMM TASK 27-31-08-000-801
 - Column Force Transducer Installation, AMM TASK 27-31-08-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

836. Elevator PCU (Left Outboard) Ram Transducer Position Signal Out of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16030.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.
- (a) Monitor the airplane to see if the fault occurs on the subsequent flights.
- (b) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Examine the left outboard elevator power control unit (PCU), M27111, for incorrect installation or mechanical failure.
- (a) If you find problem with the installation or mechanical failure, then do these steps:

EFFECTIVITY
ARO ALL

27-31 TASKS 835-836

D633W103-ARO

Page 296
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the problem.
- 2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If you do not find a problem with the installation and mechanical failure, then continue.
- (2) Adjust the left outboard elevator PCU, M27111. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27111A from the outboard power control unit (PCU) on the left elevator.
- (d) Do a wiring check between these pins of connector DM27121AC (for ACE-L1) and connector DM27111A (at the elevator PCU) (WDM 27-31-11):

DM27121AC	DM27111A
pin E13	pin 7
pin E12	pin 19

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27111A to the outboard PCU on the left elevator.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU

EFFECTIVITY
ARO ALL

27-31 TASK 836

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 297
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27111A to the outboard PCU on the left elevator.
- (4) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the left outboard elevator PCU, M27111. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 836

D633W103-ARO

Page 298
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows ACTIVE for the maintenance message, then (27-31 TASK 880).

————— END OF TASK —————

837. Elevator PCU (Right Inboard) Bypass Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10106.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:
- (a) Open this circuit breaker and attach safety tag on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU

- (b) Disconnect connector DM27212A from the right inboard elevator power control unit (PCU), M27212.
- (c) Remove the safety tag and close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU

EFFECTIVITY
ARO ALL

27-31 TASKS 836-837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.1
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a check for 28V DC from pin 16 of connector DM27212A at the left outboard elevator PCU, M27212, to structure ground (WDM 27-31-14).
- (e) If there is not 28V DC at pin 16 of connector DM27212A, then do these steps:
- 1) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27212A at the right inboard elevator PCU, M27212, and connector DM24201AD at the E5-1 shelf (WDM 27-31-14):
- | | |
|------------------|------------------|
| DM27212A | DM24201AD |
| pin 16 | pin 34 |
- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27212A.
 - c) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - e) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27212A.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28V DC at pin 16 of connector DM27212A, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU

EFFECTIVITY
ARO ALL

27-31 TASK 837

D633W103-ARO

Page 298.2
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27212A at the right inboard elevator PCU, M27212 (WDM 27-31-14):

DM27221AC	DM27212A
pin A13	pin 17

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27212A.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27212A.
- (5) Do this check of the ground wiring:
 - (a) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27221AB at the E5-2 shelf and connector DM24201AD at the E5-1 shelf (WDM 27-31-14):

EFFECTIVITY
ARO ALL

27-31 TASK 837

D633W103-ARO

Page 298.3
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27221AB

pin B4

DM24201AD

pin 28

(c) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

5) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.

6) If the maintenance message does not show on the ground test display, you corrected the fault.

(d) If you do not find a problem with the wiring, then continue.

(e) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

(6) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.

(a) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

(b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

(c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.

EFFECTIVITY
ARO ALL

27-31 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.4
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the right inboard PCU, M27212. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

838. Elevator PCU (Right Outboard) Bypass Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10107.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

EFFECTIVITY
ARO ALL

27-31 TASKS 837-838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.5
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:
 - (a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- (b) Disconnect connector DM27211A from the right outboard elevator power control unit (PCU), M27211.
- (c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- (d) Do a check for 28V DC from pin 16 of connector DM27211A at the right outboard elevator PCU, M27211, to structure ground (WDM 27-31-13).
- (e) If there is not 28V DC at pin 16 of connector DM27211A, then do these steps:
 - 1) Open the P110 left power management panel.
 - 2) Do a check of 28V DC at load terminal of circuit breaker C27609.
 - 3) If there is not 28V DC at the circuit breaker, then do these steps (WDM 27-31-13):
 - a) Replace this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- b) Re-connect connector DM27211A.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If there is 28V DC at the circuit breaker, then do these steps:
 - a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

EFFECTIVITY
ARO ALL

27-31 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.6
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- b) Repair the wiring between these pins of connector DM27211A at the right outboard elevator PCU, M27211, and the load terminal of circuit breaker C27609 (WDM 27-31-13):

DM27211B	C27609
pin 16	term 2

- c) Re-connect connector DM27211B.
d) Close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- e) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
f) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
g) If the maintenance message does not show on the ground test display, you corrected the fault.
(f) If there is 28V DC at pin 16 of connector DM27212A, then continue.
(4) Do this check of the command wiring:
(a) Open these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
(c) Do a wiring check between these pins of connector DM27122AC at the E1-1 shelf and connector DM27211A at the right outboard elevator PCU, M27211 (WDM 27-31-13):

DM27122AC	DM27211A
pin A13	pin 17

- (d) If you find a problem with the wiring, then do these steps:
1) Repair the wiring.
2) Re-connect connector DM27211A.
3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 838

D633W103-ARO

Page 298.7
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27211A.
- (5) Do this check of the ground wiring:
- (a) Disconnect connector D11013 from the P110 power management panel.
- (b) Do a wiring check between these pins of connector DM27122AB at the E1-1 shelf and connector D11013 at the P110 panel (WDM 27-31-13):

DM27122AB	D11013
pin B4	pin 8

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector D11013.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.

EFFECTIVITY
ARO ALL

27-31 TASK 838

D633W103-ARO

Page 298.8
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (f) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (6) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the right outboard PCU, M27211. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

839. Elevator PCU (Left Inboard) Blocking Solenoid 2 Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10108.

EFFECTIVITY
ARO ALL

27-31 TASKS 838-839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.9
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:
 - (a) Open this circuit breaker and attach safety tag on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-L	ELEV PCU

- (b) Disconnect connector DM27112B from the left inboard elevator power control unit (PCU), M27112.
- (c) Remove the safety tag and close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-L	ELEV PCU

- (d) Do a check for 28V DC from pin 3 of connector DM27112B at the left inboard elevator PCU, M27112, to structure ground (WDM 27-31-11).
- (e) If there is not 28V DC at pin 3 of connector DM27112B, then do these steps:
 - 1) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27112B at the left inboard elevator PCU, M27112, and connector DM24101AD at the E1-6 shelf (WDM 27-31-11):

EFFECTIVITY
ARO ALL

27-31 TASK 839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.10
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27112B

DM24101AD

pin 3 pin 34

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27112B.
 - c) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - e) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27112B.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28V DC at pin 3 of connector DM27112B, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27121AC at the E1-5 shelf and connector DM27112B at the left inboard elevator PCU, M27112 (WDM 27-31-11):

EFFECTIVITY
ARO ALL

27-31 TASK 839

D633W103-ARO

Page 298.11
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27121AC

pin A15

DM27112B

pin 2

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27112B.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27112B.
- (5) Do this check of the ground wiring:
 - (a) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27121AB at the E1-5 shelf and connector DM24101AD at the E1-6 shelf (WDM 27-31-11):

DM27121AB

pin B4

DM24101AD

pin 28

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.12
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (6) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (a) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.

EFFECTIVITY
ARO ALL

27-31 TASK 839

D633W103-ARO

Page 298.13
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the left inboard PCU, M27112. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

840. Elevator PCU (Left Inboard) Blocking Solenoid 1 Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10109.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-31 TASKS 839-840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.14
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

(3) Do this check of the power wiring:

- (a) Open this circuit breaker and attach safety tag on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU

- (b) Disconnect connector DM27112A from the left inboard elevator power control unit (PCU), M27112.

- (c) Remove the safety tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU

- (d) Do a check for 28V DC from pin 2 of connector DM27112A at the left inboard elevator PCU, M27112, to structure ground (WDM 27-31-12).

- (e) If there is not 28V DC at pin 2 of connector DM27112A, then do these steps:

- 1) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- 2) Do a wiring check between these pins of connector DM27112A at the left inboard elevator PCU, M27112, and connector DM24301AD at the E2-6 shelf (WDM 27-31-12):

DM27112A	DM24301AD
pin 2	pin 34

- 3) If you find a problem with the wiring, then do these steps:

- a) Repair the wiring.
- b) Re-connect connector DM27112A.
- c) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- e) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- f) If the maintenance message does not show on the ground test display, you corrected the fault.

- 4) If you do not find a problem with the wiring, then do these steps:

- a) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- b) Re-connect connector DM27112A.
- c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 840

D633W103-ARO

Page 298.15
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28V DC at pin 2 of connector DM27112A, then continue.
- (4) Do this check of the command wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27112A at the left inboard elevator PCU, M27112 (WDM 27-31-12):

DM27321AC	DM27112A
pin B13	pin 1

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27112A.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.16
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27112A.
- (5) Do this check of the ground wiring:
 - (a) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27321AB at the E2-5 shelf and connector DM24301AD at the E2-6 shelf (WDM 27-31-12):

DM27321AB

pin B4

DM24301AD

pin 28

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:
- | Row | Col | Number | Name |
|-----|-----|--------|---------------|
| A | 1 | CBA1-C | ACE PWR |
| A | 3 | CBA3-C | AIL PCU |
| A | 5 | CBA5-C | FLPRN PCU |
| A | 7 | CBA7-C | ELEV PCU |
| A | 9 | CBA9-C | RUD PCU |
| B | 2 | CBB2-C | STAB TRIM |
| B | 6 | CBB6-C | ELEV FEEL (C) |
- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If you do not find a problem with the wiring, then continue.
 - (e) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (6) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.

EFFECTIVITY
ARO ALL

27-31 TASK 840

D633W103-ARO

Page 298.17
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the left inboard PCU, M27112. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

841. Elevator PCU (Left Outboard) Blocking Solenoid 2 Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10111.

EFFECTIVITY
ARO ALL

27-31 TASKS 840-841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.18
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:
 - (a) Open this circuit breaker and attach safety tag on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU

- (b) Disconnect connector DM27111B from the left outboard elevator power control unit (PCU), M27111.
- (c) Remove the safety tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU

- (d) Do a check for 28V DC from pin 3 of connector DM27111B at the left outboard elevator PCU, M27111, to structure ground (WDM 27-31-11).
- (e) If there is not 28V DC at pin 3 of connector DM27111B, then do these steps:
 - 1) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27111B at the left outboard elevator PCU, M27111, and connector DM24301AD at the E2-6 shelf (WDM 27-31-11):

EFFECTIVITY
ARO ALL

27-31 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.19
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27111B

DM24301AD

pin 3 pin 34

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27111B.
 - c) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - e) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27111B.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28V DC at pin 3 of connector DM27111B, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27111B at the left outboard elevator PCU, M27111 (WDM 27-31-11):

EFFECTIVITY
ARO ALL

27-31 TASK 841

D633W103-ARO

Page 298.20
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27321AC

pin A15 pin 2

DM27111B

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27111B.
- 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27111B.
- (5) Do this check of the ground wiring:
 - (a) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27321AB at the E2-5 shelf and connector DM24301AD at the E2-6 shelf (WDM 27-31-11):

DM27321AB

pin B4 pin 28

DM24301AD

- (c) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 841

D633W103-ARO

Page 298.21
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (6) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (a) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.

EFFECTIVITY
ARO ALL

27-31 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.22
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the left outboard PCU, M27111. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

842. Elevator PCU (Right Inboard) Blocking Solenoid 2 Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10112.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-31 TASKS 841-842

D633W103-ARO

Page 298.23
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(3) Do this check of the power wiring:

(a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

(b) Disconnect connector DM27212B from the right inboard elevator power control unit (PCU), M27212.

(c) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

(d) Do a check for 28V DC from pin 3 of connector DM27212B at the right inboard elevator PCU, M27212, to structure ground (WDM 27-31-13).

(e) If there is not 28V DC at pin 3 of connector DM27212B, then do these steps:

- 1) Open the P110 left power management panel.
- 2) Do a check of 28V DC at load terminal of circuit breaker C27609.
- 3) If there is not 28V DC at the circuit breaker, then do these steps (WDM 27-31-13):
 - a) Replace this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- b) Re-connect connector DM27212B.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If there is 28V DC at the circuit breaker, then do these steps:

a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- b) Repair the wiring between these pins of connector DM27212B at the right inboard elevator PCU, M27212, and the load terminal of circuit breaker C27609 (WDM 27-31-13):

DM27212B	C27609
pin 3	term 2

EFFECTIVITY
ARO ALL

27-31 TASK 842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.24
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) Re-connect connector DM27212B.
- d) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- e) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - f) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - g) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28V DC at pin 3 of connector DM27212B, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27122AC at the E1-1 shelf and connector DM27212B at the right inboard elevator PCU, M27212 (WDM 27-31-13):

DM27122AC	DM27212B
pin A15	pin 2

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27212B.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11

EFFECTIVITY
ARO ALL

27-31 TASK 842

D633W103-ARO

Page 298.25
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27212B.
- (5) Do this check of the ground wiring:
 - (a) Disconnect connector D11013 from the P110 left power management panel.
 - (b) Do a wiring check between these pins of connector DM27122AB at the E1-1 shelf and connector D11013 at the P110 panel (WDM 27-31-13):

DM27122AB	DM11013
pin B4	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector D11013.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-31 TASK 842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.26
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (f) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (6) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the right inboard PCU, M27212. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

843. Elevator PCU (Right Inboard) Blocking Solenoid 1 Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10113.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-31 TASKS 842-843

D633W103-ARO

Page 298.27
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:
 - (a) Open this circuit breaker and attach safety tag on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU

- (b) Disconnect connector DM27212A from the right inboard elevator power control unit (PCU), M27212.
- (c) Remove the safety tag and close this circuit breaker on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU

- (d) Do a check for 28V DC from pin 2 of connector DM27212A at the left outboard elevator PCU, M27212, to structure ground (WDM 27-31-14).
- (e) If there is not 28V DC at pin 2 of connector DM27212A, then do these steps:
 - 1) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27212A at the right inboard elevator PCU, M27212, and connector DM24201AD at the E5-1 shelf (WDM 27-31-14):

DM27212A	DM24201AD
pin 2	pin 34

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27212A.

EFFECTIVITY
ARO ALL

27-31 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.28
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - e) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then do these steps:
- a) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27212A.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28V DC at pin 2 of connector DM27212A, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27212A at the right inboard elevator PCU, M27212 (WDM 27-31-14):

DM27221AC	DM27212A
pin B13	pin 1

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27212A.

EFFECTIVITY
ARO ALL

27-31 TASK 843

D633W103-ARO

Page 298.29
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27212A.
- (5) Do this check of the ground wiring:
 - (a) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27221AB at the E5-2 shelf and connector DM24201AD at the E5-1 shelf (WDM 27-31-14):

DM27221AB

pin B4

DM24201AD

pin 28

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU

EFFECTIVITY
ARO ALL

27-31 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.30
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (6) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-31 TASK 843

D633W103-ARO

Page 298.31
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the right inboard PCU, M27212. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

844. Elevator PCU (Right Outboard) Blocking Solenoid 1 Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10114.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:

EFFECTIVITY
ARO ALL

27-31 TASKS 843-844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.32
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- (b) Disconnect connector DM27211A from the right outboard elevator power control unit (PCU), M27211.

- (c) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- (d) Do a check for 28V DC from pin 2 of connector DM27211A at the right outboard elevator PCU, M27211, to structure ground (WDM 27-31-13).

- (e) If there is not 28V DC at pin 2 of connector DM27211A, then do these steps:

- 1) Open the P110 left power management panel.
- 2) Do a check of 28V DC at load terminal of circuit breaker C27609.
- 3) If there is not 28V DC at the circuit breaker, then do these steps (WDM 27-31-13):

- a) Replace this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- b) Re-connect connector DM27211A.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If there is 28V DC at the circuit breaker, then do these steps:

- a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- b) Repair the wiring between these pins of connector DM27211A at the right outboard elevator PCU, M27211, and the load terminal of circuit breaker C27609 (WDM 27-31-13):

DM27211A	C27609
pin 2	term 2

- c) Re-connect connector DM27211A.

EFFECTIVITY
ARO ALL

27-31 TASK 844

D633W103-ARO

Page 298.33
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- d) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- e) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- f) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
- g) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28V DC at pin 2 of connector DM27211A, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27122AC at the E1-1 shelf and connector DM27211A at the right outboard elevator PCU, M27211 (WDM 27-31-13):

DM27122AC	DM27211A
pin B13	pin 1

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27211A.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

EFFECTIVITY
ARO ALL

27-31 TASK 844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.34
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	28	C27608	ACE-L2 PWR

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27211A.
- (5) Do this check of the ground wiring:
 - (a) Disconnect connector D11013 from the P110 left power management panel.
 - (b) Do a wiring check between these pins of connector DM27122AB at the E1-1 shelf and connector D11013 at the P110 panel (WDM 27-31-13):

DM27122AB	DM11013
pin B4	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector D11013.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-31 TASK 844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.35
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (f) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (6) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the right outboard PCU, M27211. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

845. Elevator PCU (Right Outboard) Blocking Solenoid 2 Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10115.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-31 TASKS 844-845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.36
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:
 - (a) Open this circuit breaker and attach safety tag on the right power supply assembly, (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU

- (b) Disconnect connector DM27211B from the right outboard elevator power control unit (PCU), M27211.
- (c) Remove the safety tag and close this circuit breaker on the right power supply assembly, (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU

- (d) Do a check for 28V DC from pin 3 of connector DM27211B at the left outboard elevator PCU, M27211, to structure ground (WDM 27-31-14).
- (e) If there is not 28V DC at pin 3 of connector DM27211B, then do these steps:
 - 1) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27211B at the right outboard elevator PCU, M27211, and connector DM24201AD at the E5-1 shelf (WDM 27-31-14):

DM27211B	DM24201AD
pin 3	pin 34

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27211B.

EFFECTIVITY
ARO ALL

27-31 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.37
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - e) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then do these steps:
- a) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27211B.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28V DC at pin 3 of connector DM27211B, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27211B at the right outboard elevator PCU, M27211 (WDM 27-31-14):

DM27221AC	DM27211B
pin A15	pin 2

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27211B.

EFFECTIVITY
ARO ALL

27-31 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.38
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27211B.
- (5) Do this check of the ground wiring:
 - (a) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27221AB at the E5-2 shelf and connector DM24201AD at the E5-1 shelf (WDM 27-31-14):

DM27221AB

pin B4

DM24201AD

pin 28

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Make sure that these circuit breakers are closed on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU

EFFECTIVITY
ARO ALL

27-31 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.39
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (6) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Make sure that these circuit breakers are closed on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-31 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.40
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the right outboard PCU, M27211. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

846. Elevator PCU (Left Inboard) Pressure Reducer Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10116.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:

EFFECTIVITY
ARO ALL

27-31 TASKS 845-846

D633W103-ARO

Page 298.41
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open this circuit breaker and attach safety tag on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-L	ELEV PCU

- (b) Disconnect connector DM27112B from the left inboard elevator power control unit (PCU), M27112.
- (c) Remove the safety tag and close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-L	ELEV PCU

- (d) Do a check for 28V DC from pin 5 of connector DM27112B at the left inboard elevator PCU, M27112, to structure ground (WDM 27-31-11).
- (e) If there is not 28V DC at pin 5 of connector DM27112B, then do these steps:
- 1) Remove the PSA-C, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27112B at the left inboard elevator PCU, M27112, and connector DM24101AD at the E1-6 shelf (WDM 27-31-11):

DM27112B	DM24101AD
pin 5	pin 34

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27112B.
 - c) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - e) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27112B.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.

EFFECTIVITY
ARO ALL

27-31 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.42
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - f) If there is 28V DC at pin 5 of connector DM27112B, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27311AC at the E1-5 shelf and connector DM27112B at the left inboard elevator PCU, M27112 (WDM 27-31-11):

DM27121AC

pin B15

DM27112B

pin 6

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27112B.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.

EFFECTIVITY
ARO ALL

27-31 TASK 846

D633W103-ARO

Page 298.43
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27112B.
- (5) Do this check of the ground wiring:
 - (a) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27121AB at the E1-5 shelf and connector DM24101AD at the E1-6 shelf (WDM 27-31-11):

DM27121AB

pin B4

DM24101AD

pin 28

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (6) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.

EFFECTIVITY
ARO ALL

27-31 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.44
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the left inboard elevator PCU, M27112. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

847. Elevator PCU (Right Inboard) Pressure Reducer Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10118.

EFFECTIVITY
ARO ALL

27-31 TASKS 846-847

D633W103-ARO

Page 298.45
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: Elevator Power Control Unit Test, AMM TASK 27-31-00-700-801
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: Elevator Power Control Unit Test, AMM TASK 27-31-00-700-801
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:
 - (a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- (b) Disconnect connector DM27212B from the right inboard elevator power control unit (PCU), M27212.
- (c) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- (d) Do a check for 28V DC from pin 5 of connector DM27212B at the right inboard elevator PCU, M27212, to structure ground (WDM 27-31-13).
- (e) If there is not 28V DC at pin 5 of connector DM27212B, then do these steps:
 - 1) Open the P110 left power management panel.
 - 2) Do a check of 28V DC at load terminal of circuit breaker C27609.
 - 3) If there is not 28V DC at the circuit breaker, then do these steps (WDM 27-31-13):

EFFECTIVITY
ARO ALL

27-31 TASK 847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.46
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) Replace this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- b) Re-connect connector DM27212B.
- c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: Elevator Power Control Unit Test, AMM TASK 27-31-00-700-801
- e) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If there is 28V DC at the circuit breaker, then do these steps:

- a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- b) Repair the wiring between these pins of connector DM27212B at the right inboard elevator PCU, M27212, and the load terminal of circuit breaker C27609 (WDM 27-31-13):

DM27212B	C27609
pin 5	term 2

- c) Re-connect connector DM27212B.
- d) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- e) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- f) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: Elevator Power Control Unit Test, AMM TASK 27-31-00-700-801
- g) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is 28V DC at pin 5 of connector DM27212B, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR

EFFECTIVITY
ARO ALL

27-31 TASK 847

D633W103-ARO

Page 298.47
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27122AC at the E1-1 shelf and connector DM27212B at the right inboard elevator PCU, M27212 (WDM 27-31-13):

DM27122AC	DM27212B
pin B15	pin 6

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27212B.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: Elevator Power Control Unit Test, AMM TASK 27-31-00-700-801
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27212B.
- (5) Do this check of the ground wiring:
- (a) Disconnect connector D11013 from the P110 left power management panel.
 - (b) Do a wiring check between these pins of connector DM27122AB at the E2-5 shelf and connector D11013 at the P110 panel (WDM 27-31-13):

EFFECTIVITY
ARO ALL

27-31 TASK 847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.48
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27122AB

D11013

pin B4 pin 8

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector D11013.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: Elevator Power Control Unit Test, AMM TASK 27-31-00-700-801
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (f) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (6) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.

EFFECTIVITY
ARO ALL

27-31 TASK 847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.49
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the right inboard elevator PCU, M27212. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: Elevator Power Control Unit Test, AMM TASK 27-31-00-700-80127-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

848. Elevator PCU (Right Outboard) Pressure Reducer Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10119.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the power wiring:

EFFECTIVITY
ARO ALL

27-31 TASKS 847-848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.50
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (a) Open this circuit breaker and attach safety tag on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU

- (b) Disconnect connector DM27111B from the left outboard elevator power control unit (PCU), M27111.
- (c) Remove the safety tag and close this circuit breaker on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU

- (d) Do a check for 28V DC from pin 5 of connector DM27211B at the right outboard elevator PCU, M27221, to structure ground (WDM 27-31-14).
- (e) If there is not 28V DC at pin 5 of connector DM27211B, then do these steps:
- 1) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27211B at the right outboard elevator PCU, M27211, and connector DM24201AD at the E2-6 shelf (WDM 27-31-12):

DM27211B	DM24201AD
pin 5	pin 34

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27211B.
 - c) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - e) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27211B.
 - c) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 848

D633W103-ARO

Page 298.51
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, right Elevator Actuator Confidence.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - f) If there is 28V DC at pin 5 of connector DM27211B, then continue.
- (4) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27211B at the right outboard elevator PCU, M27211 (WDM 27-31-14):

DM27221AC	DM27211B
pin B15	pin 6

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27211B.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.52
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27211B.
- (5) Do this check of the ground wiring:
 - (a) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27221AB at the E5-2 shelf and connector DM24201AD at the E5-1 shelf (WDM 27-31-14):

DM27221AB	DM24201AD
pin B4	pin 28

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- 6) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (6) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.

EFFECTIVITY
ARO ALL

27-31 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.53
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the right outboard elevator PCU, M27211. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

849. Elevator PCU (Left Inboard) Actuation Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10120, 27-10453, 27-10456, 27-10459, 27-10462, 27-10464.

B. Initial Evaluation

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-16048, 27-11104, 27-10128, 27-10130, 27-27-10120, 27-10121, 27-10124. If more than one of these messages show, then do the fault isolation procedures in this sequence: 27-16048, 27-11104, 27-10128, 27-10130, 27-27-10120, 27-10121, 27-10124. For example, if 27-16048 shows, then do its procedure first.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-31 TASKS 848-849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.54
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the left inboard elevator power control unit (PCU), M27112. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left inboard elevator PCU, M27112. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

EFFECTIVITY
ARO ALL

27-31 TASK 849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.55
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Disconnect connector DM27112A from the left inboard elevator PCU, M27112.
- (d) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27112A at the left inboard elevator PCU, M27112 (WDM 27-31-12):

DM27321AC	DM27112A
pin A12	pin 5
pin B12	pin 15
pin E12	pin 19
pin E13	pin 7

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27112A.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

850. Elevator PCU (Left Outboard) Actuation Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10121, 27-10454, 27-10457, 27-10460, 27-10463, 27-10465.

B. Initial Evaluation

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-16048, 27-11104, 27-10128, 27-10130, 27-27-10120, 27-10121, 27-10124. If more than one of these messages show, then do the fault isolation procedures in this sequence: 27-16048, 27-11104, 27-10128, 27-10130, 27-27-10120, 27-10121, 27-10124. For example, if 27-16048 shows, then do its procedure first.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.

EFFECTIVITY
ARO ALL

27-31 TASKS 849-850

D633W103-ARO

Page 298.56
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the left outboard elevator power control unit (PCU), M27111. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left outboard elevator PCU, M27111. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

EFFECTIVITY
ARO ALL

27-31 TASK 850

D633W103-ARO

Page 298.57
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27111A from the left outboard elevator PCU, M27111.
- (d) Do a wiring check between these pins of connector DM27121AC at the E1-5 shelf and connector DM27111A at the left outboard elevator PCU, M27111 (WDM 27-31-11):

DM27121AC	DM27111A
pin A12	pin 5
pin B12	pin 15
pin E12	pin 19
pin E13	pin 7

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27111A.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

851. Elevator PCU (Right Inboard) Actuation Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10122, 27-10468, 27-10471, 27-10474, 27-10477, 27-10479.

B. Initial Evaluation

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-16049, 27-11105, 27-10129, 27-10131, 27-27-10122, 27-10123, 27-10125. If more than one of these messages show, then do the fault isolation procedures in this sequence: 27-16049, 27-11105, 27-10129, 27-10131, 27-27-10122, 27-10123, 27-10125. For example, if 27-16049 shows, then do its procedure first.

EFFECTIVITY
ARO ALL

27-31 TASKS 850-851

D633W103-ARO

Page 298.58
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the right inboard elevator power control unit (PCU), M27212. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right inboard elevator PCU, M27212. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU

EFFECTIVITY
ARO ALL

27-31 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.59
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27212A from the right inboard elevator PCU, M27212.
- (d) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27212A at the right inboard elevator PCU, M27212 (WDM 27-31-14):

<u>DM27221AC</u>	<u>DM27212A</u>
pin A12	pin 5
pin B12	pin 15
pin E12	pin 19
pin E13	pin 7

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27212A.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

852. Elevator PCU (Right Outboard) Actuation Confidence Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10123, 27-10469, 27-10472, 27-10475, 27-10478, 27-10480.

EFFECTIVITY
ARO ALL

27-31 TASKS 851-852

D633W103-ARO

Page 298.60
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-16049, 27-11105, 27-10129, 27-10131, 27-27-10122, 27-10123, 27-10125. If more than one of these messages show, then do the fault isolation procedures in this sequence: 27-16049, 27-11105, 27-10129, 27-10131, 27-27-10122, 27-10123, 27-10125. For example, if 27-16049 shows, then do its procedure first.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the right outboard elevator power control unit (PCU), M27211. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right outboard elevator PCU, M27211. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-31 TASK 852

D633W103-ARO

Page 298.61
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27211A from the right outboard elevator PCU, M27211.
- (d) Do a wiring check between these pins of connector DM27122AC at the E1-1 shelf and connector DM27211A at the right outboard elevator PCU, M27211 (WDM 27-31-13):

DM27122AC	DM27211A
pin A12	pin 5
pin B12	pin 15
pin E12	pin 19
pin E13	pin 7

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27211A.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.
- 7) If the maintenance message does show on the ground test display, then repeat this procedure.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-31 TASK 852

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.62
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

853. Elevator Surface Delta Pressure Signal Difference (Right) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10129.

B. Initial Evaluation

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-16049, 27-11105, 27-10129, 27-10131, 27-27-10122, 27-10123, 27-10125. If more than one of these messages show, then do the fault isolation procedures in this sequence: 27-16049, 27-11105, 27-10129, 27-10131, 27-27-10122, 27-10123, 27-10125. For example, if 27-16049 shows, then do its procedure first.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Adjust the right outboard elevator power control unit (PCU), M27211. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Adjust the right inboard elevator PCU, M27212. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.

EFFECTIVITY
ARO ALL

27-31 TASK 853

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.63
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (6) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the right outboard elevator PCU, M27211. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (9) Replace the right inboard elevator PCU, M27212. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-31 TASK 853

D633W103-ARO

Page 298.64
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(10) Do this check of the wiring between the ACE-L2 and right outboard elevator PCU:

(a) Open these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

(b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

(c) Disconnect connector DM27211A from the right outboard elevator PCU, M27211.

(d) Do a wiring check between these pins of connector DM27122AC at the E1-1 shelf and connector DM27211A at the right outboard elevator PCU, M27211 (WDM 27-31-11):

DM27122AC

pin A12	.....	pin 5
pin B12	.....	pin 15
pin E12	.....	pin 19
pin E13	.....	pin 7

DM27211A

(e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27211A.
- 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.

a) If the maintenance message does not show on the ground test display, you corrected the fault.

(f) If you do not find a problem with the wiring, then continue.

(g) Re-connect connector DM27211A.

(h) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 853

D633W103-ARO

Page 298.65
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (i) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (11) Do this check of the wiring between the ACE-R and right inboard elevator PCU:

- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27212A from the right inboard elevator PCU, M27212.
- (d) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27212A at the right inboard elevator PCU, M27212 (WDM 27-31-14):

DM27221AC	DM27212A
pin A12	pin 5
pin B12	pin 15
pin E12	pin 19
pin E13	pin 7

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27212A.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU

EFFECTIVITY
ARO ALL

27-31 TASK 853

D633W103-ARO

Page 298.66
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

854. Elevator Power Control Unit (Right) Oscillation Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10131.

B. Initial Evaluation

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-16049, 27-11105, 27-10129, 27-10131, 27-27-10122, 27-10123, 27-10125. If more than one of these messages show, then do the fault isolation procedures in this sequence: 27-16049, 27-11105, 27-10129, 27-10131, 27-27-10122, 27-10123, 27-10125. For example, if 27-16049 shows, then do its procedure first.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Oscillation Monitor.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Adjust the right inboard elevator PCU, M27212. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Oscillation Monitor.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Adjust the right outboard elevator PCU, M27211. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.

EFFECTIVITY
ARO ALL

27-31 TASKS 853-854

D633W103-ARO

Page 298.67
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Oscillation Monitor.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Oscillation Monitor.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (6) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Oscillation Monitor.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the right outboard elevator PCU, M27211. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801

EFFECTIVITY
ARO ALL

27-31 TASK 854

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.68
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Oscillation Monitor.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (9) Replace the right inboard PCU, M27212. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Oscillation Monitor.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message does show on the ground test display, then repeat this procedure.

————— END OF TASK —————

855. Elevator Power Control Unit (Left Inboard) Ram Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11100.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-31 TASKS 854-855

D633W103-ARO

Page 298.69
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27112A from the left inboard elevator power control unit (PCU), M27112.
- (d) Do a wiring check between these pins of connector DM27321AC at the E2-5 and connector DM27111A at the left inboard elevator PCU (WDM 27-31-12):

DM27321AC	DM27112A
pin E12	pin 19
pin E13	pin 7

- (e) Check for a short to ground for these pins:

DM27112A	GROUND
pin 7	ground
pin 19	ground

- (f) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 855

D633W103-ARO

Page 298.70
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

DM27112A	DM27112A
pin 7	pin 1
pin 7	pin 2
pin 7	pin 3
pin 7	pin 5
pin 7	pin 8
pin 7	pin 9
pin 7	pin 11
pin 7	pin 12
pin 7	pin 13
pin 7	pin 15
pin 7	pin 16
pin 7	pin 17
pin 7	pin 18
pin 7	pin 19
pin 19	pin 1
pin 19	pin 2
pin 19	pin 3
pin 19	pin 5
pin 19	pin 8
pin 19	pin 9
pin 19	pin 11
pin 19	pin 12
pin 19	pin 13
pin 19	pin 15
pin 19	pin 16
pin 19	pin 17
pin 19	pin 18

- (g) Disconnect connector DM27111B.
(h) Check for a short between these pins:

DM27112A	DM27111B
pin 7	pin 2
pin 7	pin 3
pin 7	pin 5
pin 7	pin 6
pin 19	pin 2
pin 19	pin 3
pin 19	pin 5
pin 19	pin 6

- (i) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27112A.
 - 3) Re-connect connector DM27111B.

EFFECTIVITY
ARO ALL

27-31 TASK 855

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.71
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (j) If you do not find a problem with the wiring, then continue.
- (k) Re-connect connector DM27112A.
- (l) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (m) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-31 TASK 855

D633W103-ARO

Page 298.72
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (5) Replace the left inboard elevator PCU, M27112. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

856. Elevator Power Control Unit (Right Inboard) Ram Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11102.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR

EFFECTIVITY
ARO ALL

27-31 TASKS 855-856

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.73
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27212A from the right inboard elevator power control unit (PCU), M27212.
- (d) Do a wiring check between these pins of connector DM27221AC at the E5-2 and connector DM27212A at the right inboard elevator PCU (WDM 27-31-14):

DM27221AC	DM27212A
pin E12	pin 19
pin E13	pin 7

- (e) Check for a short to ground for these pins:

DM27212A	GROUND
pin 7	ground
pin 19	ground

- (f) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 856

D633W103-ARO

Page 298.74
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

DM27212A	DM27112A
pin 7	pin 1
pin 7	pin 2
pin 7	pin 3
pin 7	pin 5
pin 7	pin 8
pin 7	pin 9
pin 7	pin 11
pin 7	pin 12
pin 7	pin 13
pin 7	pin 15
pin 7	pin 16
pin 7	pin 17
pin 7	pin 18
pin 7	pin 19
pin 19	pin 1
pin 19	pin 2
pin 19	pin 3
pin 19	pin 5
pin 19	pin 8
pin 19	pin 9
pin 19	pin 11
pin 19	pin 12
pin 19	pin 13
pin 19	pin 15
pin 19	pin 16
pin 19	pin 17
pin 19	pin 18

- (g) Disconnect connector DM27211B.
- (h) Check for a short between these pins:

DM27212A	DM27211B
pin 7	pin 2
pin 7	pin 3
pin 7	pin 5
pin 7	pin 6
pin 19	pin 2
pin 19	pin 3
pin 19	pin 5
pin 19	pin 6

- (i) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27212A.
 - 3) Re-connect connector DM27211B.

EFFECTIVITY
ARO ALL

27-31 TASK 856

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.75
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (j) If you do not find a problem with the wiring, then continue.
- (k) Re-connect connector DM27212A.
- (l) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (m) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 856

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.76
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard elevator PCU, M27212.
These are the tasks:
Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,
Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

857. Elevator Power Control Unit (Right Outboard) Ram Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11103.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.
These are the tasks:
Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-31 TASKS 856-857

D633W103-ARO

Page 298.77
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27211A from the right outboard elevator power control unit (PCU), M27211.
- (d) Do a wiring check between these pins of connector DM27122AC at the E1-1 and connector DM27121A at the right outboard elevator PCU (WDM 27-31-13):

DM27122AC	DM27211A
pin E12	pin 19
pin E13	pin 7

- (e) Check for a short to ground for these pins:

DM27211A	GROUND
pin 7	ground
pin 19	ground

- (f) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 857

D633W103-ARO

Page 298.78
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

DM27211A	DM27211A
pin 7	pin 1
pin 7	pin 2
pin 7	pin 3
pin 7	pin 5
pin 7	pin 8
pin 7	pin 9
pin 7	pin 11
pin 7	pin 12
pin 7	pin 13
pin 7	pin 15
pin 7	pin 16
pin 7	pin 17
pin 7	pin 18
pin 7	pin 19
pin 19	pin 1
pin 19	pin 2
pin 19	pin 3
pin 19	pin 5
pin 19	pin 8
pin 19	pin 9
pin 19	pin 11
pin 19	pin 12
pin 19	pin 13
pin 19	pin 15
pin 19	pin 16
pin 19	pin 17
pin 19	pin 18

- (g) Disconnect connector DM27212B.
(h) Check for a short between these pins:

DM27211A	DM27212B
pin 7	pin 2
pin 7	pin 3
pin 19	pin 2
pin 19	pin 3

- (i) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27211A.
 - 3) Re-connect connector DM27212B.
 - 4) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 857

D633W103-ARO

Page 298.79
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - j) If you do not find a problem with the wiring, then continue.
 - k) Re-connect connector DM27211A.
 - l) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - m) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right outboard elevator PCU, M27211.

These are the tasks:

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

EFFECTIVITY
ARO ALL

27-31 TASK 857

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.80
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message does show on the ground test display, then repeat this procedure.

————— END OF TASK —————

858. Column Position Transducer (Right 1) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12107.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,

Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

EFFECTIVITY
ARO ALL

27-31 TASKS 857-858

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.81
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27234 for column position transducer R1.
- (d) Do a wiring check between these pins of connector DM27122AA (for ACE-L2) and connector DM27234 (for the position transducer) (WDM 27-31-13):

DM27122AA	DM27234
pin K8	pin 8
pin J8	pin 9
pin H9	pin 1
pin K9	pin 6
pin J9	pin 5

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27234 for the position transducer.
 - 3) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (f) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If you do not find a problem with the wiring, then continue.
- (4) Replace column position transducer R1, M27234.

These are the tasks:

Column Position Transducers Removal, AMM TASK 27-31-04-000-801,

Column Position Transducers Installation, AMM TASK 27-31-04-400-801.

- (a) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Re-connect connector DM27234 for the position transducer.
- (c) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR

EFFECTIVITY
ARO ALL

27-31 TASK 858

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.82
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message does show on the ground test display, then repeat this procedure.

————— **END OF TASK** —————

859. Column Position Transducer (Right 2) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12108.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.
- These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation and feedback wiring:

EFFECTIVITY
ARO ALL

27-31 TASKS 858-859

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.83
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27235 for column position transducer L2.
- (d) Do a wiring check between these pins of connector DM27321AA (for ACE-C) and connector DM27235 (for the position transducer) (WDM 27-31-12):

DM27321AA	DM27235
pin K8	pin 8
pin J8	pin 9
pin H9	pin 1
pin K9	pin 6
pin J9	pin 5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27235 for the position transducer.
 - 3) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Replace column position transducer R2, M27235.

EFFECTIVITY
ARO ALL

27-31 TASK 859

D633W103-ARO

Page 298.84
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Column Position Transducers Removal, AMM TASK 27-31-04-000-801,
Column Position Transducers Installation, AMM TASK 27-31-04-400-801.

- (a) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Re-connect connector DM27235 for the position transducer.
- (c) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

860. Column Position Transducer (Right 3) Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12109.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.

EFFECTIVITY
ARO ALL

27-31 TASKS 859-860

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.85
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation and feedback wiring:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27236 for column position transducer R3.
- (d) Do a wiring check between these pins of connector DM27221AA (for ACE-R) and connector DM27236 (for the position transducer) (WDM 27-31-14):

DM27221AA	DM27236
pin A10	pin 8
pin A11	pin 9
pin B11	pin 1
pin C10	pin 6
pin C11	pin 5

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27236 for the position transducer.
 - 3) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-31 TASK 860

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.86
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
- (4) Replace column position transducer R3, M27236.

These are the tasks:

Column Position Transducers Removal, AMM TASK 27-31-04-000-801,
Column Position Transducers Installation, AMM TASK 27-31-04-400-801.

 - (a) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (b) Re-connect connector DM27236 for the position transducer.
 - (c) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

861. Column Position Transducer (Right 1) Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12110.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-31 TASKS 860-861

D633W103-ARO

Page 298.87
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Adjust (rig) the right 1 column position transducer, M27234. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.
 - (a) If you could adjust the column position transducer to the specified tolerances shown in AMM 27-31-00/501, then do these steps:
 - 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
 - (b) If you could not adjust the column position transducer to the specified tolerances shown in AMM 27-31-00/501, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27234 for column position transducer R1.
- (d) Do a wiring check between these pins of connector DM27122AA (for ACE-L2) and connector DM27234 (for the position transducer) (WDM 27-31-13):

<u>DM27122AA</u>	<u>DM27234</u>
pin K9	pin 6
pin J9	pin 5

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27234 for the position transducer.
 - 3) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11

EFFECTIVITY
ARO ALL

27-31 TASK 861

D633W103-ARO

Page 298.88
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27234 for the position transducer.
- (3) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right 1 column position transducer, M27234.

These are the tasks:

Column Position Transducers Removal, AMM TASK 27-31-04-000-801,
Column Position Transducers Installation, AMM TASK 27-31-04-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then repeat this procedure.

————— END OF TASK —————

862. Column Position Transducer (Right 2) Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12111.

EFFECTIVITY
ARO ALL

27-31 TASKS 861-862

D633W103-ARO

Page 298.89
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust (rig) the right 2 column position transducer, M27235. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.
 - (a) If you could adjust the column position transducer to the specified tolerances shown in AMM 27-31-00/501, then do these steps:
 - 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
 - (b) If you could not adjust the column position transducer to the specified tolerances shown in AMM 27-31-00/501, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27235 for column position transducer L2.
- (d) Do a wiring check between these pins of connector DM27321AA (for ACE-C) and connector DM27235 (for the position transducer) (WDM 27-31-12):

DM27321AA	DM27235
pin K9	pin 6
pin J9	pin 5

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-31 TASK 862

D633W103-ARO

Page 298.90
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-connect connector DM27235 for the position transducer.
- 3) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
 - g) Re-connect connector DM27235 for the position transducer.
- (3) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right 1 column position transducer, M27234.

These are the tasks:

Column Position Transducers Removal, AMM TASK 27-31-04-000-801,
Column Position Transducers Installation, AMM TASK 27-31-04-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.

EFFECTIVITY
ARO ALL

27-31 TASK 862

D633W103-ARO

Page 298.91
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

863. Column Position Transducer (Right 3) Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12112.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust (rig) the right 3 column position transducer, M27236. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.
- (a) If you could adjust the column position transducer to the specified tolerances shown in AMM 27-31-00/501, then do these steps:
- 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (b) If you could not adjust the column position transducer to the specified tolerances shown in AMM 27-31-00/501, then continue.
- (2) Do this check of the feedback wiring:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27236 for column position transducer R3.

EFFECTIVITY
ARO ALL

27-31 TASKS 862-863

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.92
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins of connector DM27221AA (for ACE-R) and connector DM27236 (for the position transducer) (WDM 27-31-14):

DM27221AA	DM27236
pin C10	pin 6
pin C11	pin 5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27236 for the position transducer.
 - 3) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27236 for the position transducer.
- (3) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.

EFFECTIVITY
ARO ALL

27-31 TASK 863

D633W103-ARO

Page 298.93
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right 1 column position transducer, M27234.
These are the tasks:
Column Position Transducers Removal, AMM TASK 27-31-04-000-801,
Column Position Transducers Installation, AMM TASK 27-31-04-400-801.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Position.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

864. Left Inboard Elevator PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15017.

B. Initial Evaluation

- (1) Open this circuit breaker and attach safety tag on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU

- (a) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:
 - (a) Open this circuit breaker and attach safety tag on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- (c) Remove the PSA-C, M24301, from the E2-6 shelf.

EFFECTIVITY
ARO ALL

27-31 TASKS 863-864

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.94
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) Disconnect connector DM27112A from the left inboard elevator power control unit (LIB PCU), M27112.
- (e) Do a wiring check between these pins of connector DM27112A for the LIB PCU and connector DM24301AD at the PSA-C (WDM 27-31-11):

DM27112A	DM24301AD
pin 16	pin 34
pin 2	pin 34

- (f) Disconnect connector DM27111B from the left outboard elevator power control unit (LOB PCU), M27111.
- (g) Do a wiring check between these pins of connector DM27112A for the LIB PCU and connector DM24301AD at the PSA-C (WDM 27-31-11):

DM27112A	DM24301AD
pin 3	pin 34
pin 5	pin 34

- (h) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connectors DM27112A and DM27111B to the PCUs.
 - 3) Re-install the PSA-C, M24301.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- 5) Remove the safety tag and close this circuit breaker on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
D	8	CBD8-C	PFC BAT INTLK

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (i) If you do not find a problem with the wiring, then continue.
- (2) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 864

D633W103-ARO

Page 298.95
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) If the maintenance message shows on the ground test display, then continue.
- (3) Measure the resistance between these pins of connector DM27112A on the LIB PCU, M27112 (WDM 27-31-11).
- (a) Pin 2 and pin 1, specified resistance 50 - 70 ohms.
- (b) Pin 16 and pin 17, specified resistance 65-85 ohms.
- (c) If the resistance is not in the range specified for each pair of pins, then do these steps:
- 1) Replace the left inboard elevator PCU, M27112. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the resistance is in the range specified for each pair of pins, then continue.
- (4) Measure the resistance between these pins of connector DM27111B on the LOB PCU, M27111 (WDM 27-31-11).
- (a) Pin 3 and pin 2, specified resistance 50-70 ohms.
- (b) Pin 5 and pin 6, specified resistance 65-85 ohms.
- (c) If the resistance is not in the range specified for each pair of pins, then do these steps:
- 1) Replace the left outboard elevator PCU, M27111. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the resistance is in the range specified for each pair of pins, then continue.
- (5) Replace the PSA-C, M24301. These are the tasks:
- Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the maintenance message does show on the ground test display, then repeat this procedure.

————— END OF TASK —————

865. Right Inboard Elevator PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15019.

B. Initial Evaluation

- (1) Close this circuit breaker on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU

EFFECTIVITY
ARO ALL

27-31 TASKS 864-865

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.96
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:

- (a) Open this circuit breaker and attach safety tag on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- (c) Remove the PSA-R, M24201, from the E5-1 shelf.
 - (d) Disconnect connector DM27212A from the right inboard elevator power control unit (RIB PCU), M27212.
 - (e) Do a wiring check between these pins of connector DM27212A for the RIB PCU and connector DM24201AD at the PSA-R (WDM 27-31-11):

DM27212A	DM24201AD
pin 16	pin 34
pin 2	pin 34

- (f) Disconnect connector DM27211B from the right outboard elevator power control unit (ROB PCU), M27211.
 - (g) Do a wiring check between these pins of connector DM27211B for the ROB PCU and connector DM24201AD at the PSA-R (WDM 27-31-11):

DM27211B	DM24201AD
pin 3	pin 34
pin 5	pin 34

- (h) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connectors DM27212A and DM27211B to the PCUs.
 - 3) Re-install the PSA-R, M24201.

EFFECTIVITY
ARO ALL

27-31 TASK 865

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.97
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- 5) Remove the safety tag and close this circuit breaker on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (i) If you do not find a problem with the wiring, then continue.
- (2) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (3) Measure the resistance between these pins of connector DM27212A on the RIB PCU, M27212 (WDM 27-31-11).
- (a) Pin 2 and pin 1, specified resistance 50-70 ohms.
- (b) Pin 16 and pin 17, specified resistance 65-85 ohms.
- (c) If the resistance is not in the range specified for each pair of pins, then do these steps:
- 1) Replace the right inboard elevator PCU, M27212. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the resistance is in the range specified for each pair of pins, then continue.
- (4) Measure the resistance between these pins of connector DM27211B on the ROB PCU, M27211 (WDM 27-31-11).
- (a) Pin 3 and pin 2, specified resistance 50-70 ohms.
- (b) Pin 5 and pin 6, specified resistance 65-85 ohms.
- (c) If the resistance is not in the range specified for each pair of pins, then do these steps:
- 1) Replace the right outboard elevator PCU, M27211. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801

EFFECTIVITY
ARO ALL

27-31 TASK 865

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.98
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the resistance is in the range specified for each pair of pins, then continue.
- (5) Replace the PSA-R, M24201. These are the tasks:
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the maintenance message does show on the ground test display, then repeat this procedure.

————— **END OF TASK** —————

866. Elevator Control Column (Captain's or First Officer's) Does Not Move Freely

A. Initial Evaluation

- (1) Move the Captain's control column fully aft and fully forward.
 - (a) Make sure the Captain's control column moves freely.

B. Fault Isolation Procedure

- (1) Examine the torque tube and the control column installation for unwanted objects and damaged components.
- (2) Make sure the control column is at the neutral position.
 - (a) Install rig pins E1, E2 and E3.
 - (b) If the rig pins can not be installed freely, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.
 - (c) Make sure the control column moves freely.
 - (d) If the control column moves freely, you corrected the fault.
- (3) If the control column does not move freely, disconnect the control rods for the elevator feel and centering mechanism, do this task: Elevator Feel and Centering Mechanism Removal, AMM TASK 27-31-06-000-801.
 - (a) Make sure the control column moves freely.
 - (b) If the control column moves freely, repair or replace the elevator feel and centering mechanism, do this task: Elevator Feel and Center Mechanism Installation, AMM TASK 27-31-06-400-801.
 - (c) If the control column moves freely, you corrected the fault.
- (4) If the control column does not move freely, do this task: Control Column Backdrive - System Test, AMM TASK 22-11-00-730-805.
 - (a) Repair or replace the backdrive actuator, if it is necessary, do this task: Control Column Backdrive Actuator Installation, AMM TASK 22-11-05-400-801.
 - (b) If the control column moves freely, you corrected the fault.
 - (c) If the control column does not move freely, then repeat this procedure.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-31 TASKS 865-866

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.99
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

867. Elevator Control Column Tension is too Light

A. Initial Evaluation

- (1) Move the Captain's control column fully aft and fully forward.
 - (a) Make sure the Captain's control column moves freely.

B. Fault Isolation Procedure

- (1) Replace the elevator feel actuator, do this task: Elevator Feel Actuators - Installation, AMM TASK 27-31-07-400-801.
- (2) If the control column tension is still too light, replace the elevator feel and centering mechanism.
 - (a) Do this task: Elevator Feel and Center Mechanism Installation, AMM TASK 27-31-06-400-801.

————— END OF TASK —————

868. Left Inboard Elevator PCU Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10100.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-10000, 27-10002, 27-10013, 27-10100, 27-10200, 27-10202, 27-10400, 27-10500, 27-10504, 27-10506, 27-10507, 27-10509, and 27-10513. If there are more than six of the following maintenance messages show, then the failures could be caused by a poor performing hydraulic pump. Perform the following procedure to isolate the failure. Turn off both center ACMPs and turn on both center ADPs. Cycle the flight control surfaces; spoilers, ailerons, elevators and rudder and monitor hydraulic pressure indication and check for faults. If faults are present, check the center ADPs, center ACMPs, filters, and check valves for FOD. Repeat test with center ACMPs on and center ADPs off.

- (3) Repeat the above procedure for the following maintenance messages: 27-10000, 27-10002, 27-10013, 27-10200, 27-10202, 27-10400, 27-10500, 27-10504, 27-10506, 27-10507, 27-10509, and 27-10513.

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:

EFFECTIVITY
ARO ALL

27-31 TASKS 867-868

D633W103-ARO

Page 298.100
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-8 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27112A from the left inboard elevator power control unit (LIB PCU).
- (d) Do a wiring check between these pins of connector DM27321AC at the E2-5 and connector DM27112A at the LIB PCU (WDM 27-31-12):

DM27321AC	DM27112A
pin A14	pin 9
pin B14	pin 8

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27112A to the PCU.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-8 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (f) If you do not find a problem with the wiring, then continue.

- (2) Exchange the ACE for M27321. This is the task:

EFFECTIVITY
ARO ALL

27-31 TASK 868

D633W103-ARO

Page 298.101
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left inboard elevator PCU, M27112. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then repeat this procedure.

————— **END OF TASK** —————

869. Right Inboard Elevator PCU Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10102.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-31 TASKS 868-869

D633W103-ARO

Page 298.102
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-10001, 27-10003, 27-10014, 27-10102, 27-10300, 27-10302, 27-10402, 27-10502, 27-10505, 27-10508, and 27-10511. If there are more than six of the following maintenance messages show, then the failures could be caused by a poor performing hydraulic pump. Perform the following procedure to isolate the failure. Turn off the right ACMP and turn on the right EDP. Cycle the flight control surfaces; spoilers, ailerons, elevators and rudder and monitor hydraulic pressure indication and check for faults. If faults are present, check the right EDP, right ACMP, filters, and check valves for FOD. Repeat test with right ACMP on and right EDP off.

- (3) Repeat the above procedure for the following maintenance messages: 27-10001, 27-10003, 27-10014, 27-10300, 27-10302, 27-10402, 27-10502, 27-10505, 27-10508, and 27-10511.

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:
- (a) Disconnect connector DM27212A from the right inboard elevator power control unit (RIB PCU).
 - (b) Do a wiring check between these pins of connector DM27221AC at the E5-2 and connector DM27212A at the RIB PCU (WDM 27-31-14):

DM27221AC	DM27212A
pin A14	pin 9
pin B14	pin 8

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27212A to the PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-31 TASK 869

D633W103-ARO

Page 298.103
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (d) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard elevator PCU, M27212. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then repeat this procedure.

————— **END OF TASK** —————

870. Right Outboard Elevator PCU Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10103.

EFFECTIVITY
ARO ALL

27-31 TASKS 869-870

D633W103-ARO

Page 298.104
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the command wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27211A from the right outboard elevator power control unit (ROB PCU).
- (d) Do a wiring check between these pins of connector DM27122AC at the E1-1 and connector DM27122A at the ROB PCU (WDM 27-31-13):

<u>DM27122AC</u>	<u>DM27211A</u>
pin A14	pin 9
pin B14	pin 8

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27211A to the PCU.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (f) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R

EFFECTIVITY
ARO ALL

27-31 TASK 870

D633W103-ARO

Page 298.105
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right outboard elevator PCU, M27211. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.

EFFECTIVITY
ARO ALL

27-31 TASK 870

D633W103-ARO

Page 298.106
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

871. Elevator Power Control Unit (Left Inboard) Delta Pressure Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11110.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27112A from the inboard power control unit (PCU) on the left elevator.
- (d) Do a wiring check between these pins of connector DM27321AC (for ACE-C) and connector DM27112A (at the elevator PCU) (WDM 27-31-12):

DM27321AC	DM27112A
pin A12	pin 5
pin B12	pin 15

- (e) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASKS 870-871

D633W103-ARO

Page 298.107
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

DM27112A	DM27112A
pin 5	pin 1
pin 5	pin 2
pin 5	pin 3
pin 5	pin 7
pin 5	pin 8
pin 5	pin 9
pin 5	pin 11
pin 5	pin 12
pin 5	pin 13
pin 5	pin 15
pin 5	pin 16
pin 5	pin 17
pin 5	pin 18
pin 5	pin 19
pin 15	pin 1
pin 15	pin 2
pin 15	pin 3
pin 15	pin 7
pin 15	pin 8
pin 15	pin 9
pin 15	pin 11
pin 15	pin 12
pin 15	pin 13
pin 15	pin 16
pin 15	pin 17
pin 15	pin 18
pin 15	pin 19

- (f) Disconnect connector DM27111B.
(g) Check for a short between these pins:

DM27112A	DM27111B
pin 5	pin 2
pin 5	pin 3
pin 5	pin 5
pin 5	pin 6
pin 15	pin 2
pin 15	pin 3
pin 15	pin 5
pin 15	pin 6

- (h) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27112A to the inboard PCU on the left elevator.
 - 3) Re-connect connector DM27111B.

EFFECTIVITY
ARO ALL

27-31 TASK 871

D633W103-ARO

Page 298.108
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Remove these safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 7) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - i) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Re-connect connector DM27112A to the inboard PCU on the left elevator.
 - (b) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-31 TASK 871

D633W103-ARO

Page 298.109
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the inboard PCU on the left elevator, M27112.

These are the tasks:

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then repeat this procedure.

————— **END OF TASK** —————

872. Elevator Power Control Unit (Right Inboard) Delta Pressure Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11112.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

EFFECTIVITY
ARO ALL

27-31 TASKS 871-872

D633W103-ARO

Page 298.110
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

(1) Do this check of the feedback wiring:

- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27212A from the inboard power control unit (PCU) on the right elevator.
- (d) Do a wiring check between these pins of connector DM27221AC (for ACE-R) and connector DM27212A (at the elevator PCU) (WDM 27-31-14):

DM27221AC	DM27212A
pin A12	pin 5
pin B12	pin 15

- (e) Check for short to ground for these pins:

DM27212A	GROUND
pin 5	ground
pin 15	ground

- (f) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 872

D633W103-ARO

Page 298.111
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

DM27212A	DM27212A
pin 5	pin 1
pin 5	pin 2
pin 5	pin 3
pin 5	pin 7
pin 5	pin 8
pin 5	pin 9
pin 5	pin 11
pin 5	pin 12
pin 5	pin 13
pin 5	pin 15
pin 5	pin 16
pin 5	pin 17
pin 5	pin 18
pin 5	pin 19
pin 15	pin 1
pin 15	pin 2
pin 15	pin 3
pin 15	pin 7
pin 15	pin 8
pin 15	pin 9
pin 15	pin 11
pin 15	pin 12
pin 15	pin 13
pin 15	pin 16
pin 15	pin 17
pin 15	pin 18
pin 15	pin 19

- (g) Disconnect connector DM27211B.
(h) Check for a short between these pins:

DM27212A	DM27211B
pin 5	pin 2
pin 5	pin 3
pin 5	pin 5
pin 5	pin 6
pin 15	pin 2
pin 15	pin 3
pin 15	pin 5
pin 15	pin 6

- (i) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27212A to the inboard PCU on the right elevator.
 - 3) Re-connect connector DM27211B.

EFFECTIVITY
ARO ALL

27-31 TASK 872

D633W103-ARO

Page 298.112
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- 7) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (j) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect connector DM27212A to the inboard PCU on the right elevator.
 - (b) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-31 TASK 872

D633W103-ARO

Page 298.113
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the inboard PCU on the right elevator, M27212.

These are the tasks:

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

873. Elevator Power Control Unit (Right Outboard) Delta Pressure Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11113.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-31 TASKS 872-873

D633W103-ARO

Page 298.114
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27211A from the outboard power control unit (PCU) on the right elevator.
- (d) Do a wiring check between these pins of connector DM27122AC (for ACE-L2) and connector DM27211A (at the elevator PCU) (WDM 27-31-13):

DM27122AC	DM27211A
pin A12	pin 5
pin B12	pin 15

- (e) Check for short to ground for these pins:

DM27211A	GROUND
pin 5	ground
pin 15	ground

- (f) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 873

D633W103-ARO

Page 298.115
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

DM27211A	DM27211A
pin 5	pin 1
pin 5	pin 2
pin 5	pin 3
pin 5	pin 7
pin 5	pin 8
pin 5	pin 9
pin 5	pin 11
pin 5	pin 12
pin 5	pin 13
pin 5	pin 15
pin 5	pin 16
pin 5	pin 17
pin 5	pin 18
pin 5	pin 19
pin 15	pin 1
pin 15	pin 2
pin 15	pin 3
pin 15	pin 7
pin 15	pin 8
pin 15	pin 9
pin 15	pin 11
pin 15	pin 12
pin 15	pin 13
pin 15	pin 16
pin 15	pin 17
pin 15	pin 18
pin 15	pin 19

- (g) Disconnect connector DM27212B.
(h) Check for a short between these pins:

DM27211A	DM27212B
pin 5	pin 2
pin 5	pin 3
pin 15	pin 2
pin 15	pin 3

- (i) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27211A to the outboard PCU on the right elevator.
 - 3) Re-connect connector DM27212B.
 - 4) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 873

D633W103-ARO

Page 298.116
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (j) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 1) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- 2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (k) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Re-connect connector DM27211A to the outboard PCU on the right elevator.
 - (b) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.

EFFECTIVITY
ARO ALL

27-31 TASK 873

D633W103-ARO

Page 298.117
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the outboard PCU on the right elevator, M27211.

These are the tasks:

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then repeat this procedure.

————— END OF TASK —————

874. Elevator PCU (Left Inboard) Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16005.

B. Initial Evaluation

NOTE: This maintenance message can only occur when you do the Left Elevator Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: "Select NO if you cannot align them". If you select YES, then this maintenance message will not show as a failure.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Alignment.

NOTE: AMM 27-31-00/501 contains information that will help you do this ground test.

 - (a) If you could adjust the elevator correctly during the ground test, then you corrected the fault.
 - (b) If you could not adjust the elevator correctly during the ground test, then continue.
- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Alignment.

EFFECTIVITY
ARO ALL

27-31 TASKS 873-874

D633W103-ARO

Page 298.118
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If you could adjust the elevator correctly during the ground test, then you corrected the fault.
- (c) If you could not adjust the elevator correctly during the ground test, then continue.
- (4) Replace the left inboard elevator PCU, M27112. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Alignment.
- (b) If you could adjust the elevator correctly during the ground test, then you corrected the fault.

————— END OF TASK —————

875. Elevator PCU (Right Outboard) Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16006.

B. Initial Evaluation

NOTE: This maintenance message can only occur when you do the Right Elevator Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: "Select NO if you cannot align them". If you select YES, then this maintenance message will not show as a failure.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Alignment.

NOTE: AMM 27-31-00/501 contains information that will help you do this ground test.
- (a) If you could adjust the elevator correctly during the ground test, then you corrected the fault.
- (b) If you could not adjust the elevator correctly during the ground test, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Alignment.
- (b) If you could adjust the elevator correctly during the ground test, then you corrected the fault.
- (c) If you could not adjust the elevator correctly during the ground test, then continue.
- (4) Replace the right outboard elevator PCU, M27211. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Alignment.

EFFECTIVITY
ARO ALL

27-31 TASKS 874-875

D633W103-ARO

Page 298.119
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If you could adjust the elevator correctly during the ground test, then you corrected the fault.

————— END OF TASK —————

876. Elevator PCU (Right Inboard) Adjustment Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16007.

B. Initial Evaluation

NOTE: This maintenance message can only occur when you do the Right Elevator Alignment ground test on the MAT. It will occur if you select NO when the MAT shows this statement during the test: "Select NO if you cannot align them". If you select YES, then this maintenance message will not show as a failure.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Alignment.

NOTE: AMM 27-31-00/501 contains information that will help you do this ground test.

- (a) If you could adjust the elevator correctly during the ground test, then you corrected the fault.
- (b) If you could not adjust the elevator correctly during the ground test, then continue.
- (2) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Alignment.
- (b) If you could adjust the elevator correctly during the ground test, then you corrected the fault.
- (c) If you could not adjust the elevator correctly during the ground test, then continue.
- (4) Replace the right inboard elevator PCU, M27212. These are the tasks:
- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Alignment.
- (b) If you could adjust the elevator correctly during the ground test, then you corrected the fault.

————— END OF TASK —————

877. Column Force Transducer (Left) No. 2 Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12601.

EFFECTIVITY
ARO ALL

27-31 TASKS 875-877

D633W103-ARO

Page 298.120
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer.

NOTE: When you do the Column Force Transducer test on the MAT, monitor the COLUMN FORCE indication on maintenance page 1 of the flight controls maintenance pages. When the MAT tells you to move the column fully forward, do not move it fully forward. Alternatively, move the column forward until the COLUMN FORCE indications (on the maintenance page) show 85.0 to 99.0 (hold it in this position for a minimum of 5 seconds). If you move the column fully forward the test will fail.

- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,

Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation and feedback wiring:
 - (a) Disconnect connector DM27139B from the left column force transducer, M27139.
 - (b) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector DM27321AA at the E2-5 shelf and connector DM27139B at the left column force transducer, M27139 (WDM 23-31-12):

EFFECTIVITY
ARO ALL

27-31 TASK 877

D633W103-ARO

Page 298.121
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27321AA

pin J13 pin 8
pin J14 pin 9
pin K13 pin 6
pin K14 pin 5
pin K15 pin 1

DM27139B

- (e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27139B.
- 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (h) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (4) Replace the left column force transducer, M27139.

These are the tasks:

Column Force Transducer Removal, AMM TASK 27-31-08-000-801,

Column Force Transducer Installation, AMM TASK 27-31-08-400-801.

EFFECTIVITY
ARO ALL

27-31 TASK 877

D633W103-ARO

Page 298.122
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

878. Column Force Transducer (Right) No. 1 Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12603.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer.

NOTE: When you do the Column Force Transducer test on the MAT, monitor the COLUMN FORCE indication on maintenance page 1 of the flight controls maintenance pages. When the MAT tells you to move the column fully forward, do not move it fully forward. Alternatively, move the column forward until the COLUMN FORCE indications (on the maintenance page) show 85.0 to 99.0 (hold it in this position for a minimum of 5 seconds). If you move the column fully forward the test will fail.

- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation and feedback wiring:
 - (a) Disconnect connector DM27239A from the right column force transducer, M27239.
 - (b) Open these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R

EFFECTIVITY
ARO ALL

27-31 TASKS 877-878

D633W103-ARO

Page 298.123
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector DM27122AA at the E1-1 shelf and connector DM27239A at the right column force transducer, M27239 (WDM 23-31-13):

<u>DM27122AA</u>	<u>DM27239A</u>
pin J13	pin 8
pin J14	pin 9
pin K13	pin 6
pin K14	pin 5
pin K15	pin 1

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27239A.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (h) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR

EFFECTIVITY
ARO ALL

27-31 TASK 878

D633W103-ARO

Page 298.124
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (4) Replace the right column force transducer, M27239.

These are the tasks:

Column Force Transducer Removal, AMM TASK 27-31-08-000-801,

Column Force Transducer Installation, AMM TASK 27-31-08-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

— END OF TASK —

879. Column Force Transducer (Right) No. 2 Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12604.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer.

NOTE: When you do the Column Force Transducer test on the MAT, monitor the COLUMN FORCE indication on maintenance page 1 of the flight controls maintenance pages. When the MAT tells you to move the column fully forward, do not move it fully forward. Alternatively, move the column forward until the COLUMN FORCE indications (on the maintenance page) show 85.0 to 99.0 (hold it in this position for a minimum of 5 seconds). If you move the column fully forward the test will fail.

- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,

Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASKS 878-879

D633W103-ARO

Page 298.125
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation and feedback wiring:
- (a) Disconnect connector DM27239B from the right column force transducer, M27239.
 - (b) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector DM27221AA at the E5-2 shelf and connector DM27239B at the right column force transducer, M27239 (WDM 27-31-14):

DM27221AA	DM27239B
pin J13	pin 8
pin J14	pin 9
pin K13	pin 6
pin K14	pin 5
pin K15	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27239B.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM

EFFECTIVITY
ARO ALL

27-31 TASK 879

D633W103-ARO

Page 298.126
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (h) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (4) Replace the right column force transducer, M27239.

These are the tasks:

Column Force Transducer Removal, AMM TASK 27-31-08-000-801,

Column Force Transducer Installation, AMM TASK 27-31-08-400-801.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

880. Elevator PCU (Left Inboard) Ram Transducer Position Signal Out of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16029.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.
 - (a) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - (b) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

EFFECTIVITY
ARO ALL

27-31 TASKS 879-880

D633W103-ARO

Page 298.127
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Examine the left inboard elevator power control unit (PCU), M27112, for incorrect installation or mechanical failure.
 - (a) If you find problem with the installation or mechanical failure, then do these steps:
 - 1) Repair the problem.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If you do not find a problem with the installation and mechanical failure, then continue.
- (2) Adjust the left inboard elevator PCU, M27112. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27112A from the inboard power control unit (PCU) on the left elevator.
- (d) Do a wiring check between these pins of connector DM27321AC (for ACE-C) and connector DM27112A (at the elevator PCU) (WDM 27-31-12):

DM27321AC	DM27112A
pin E13	pin 7
pin E12	pin 19

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27112A to the inboard PCU on the left elevator.
 - 3) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 880

D633W103-ARO

Page 298.128
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove these safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27112A to the inboard PCU on the left elevator.
- (4) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the left inboard elevator PCU, M27112.

These are the tasks:

EFFECTIVITY
ARO ALL

27-31 TASK 880

D633W103-ARO

Page 298.129
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then (27-31 TASK 836).

————— **END OF TASK** —————

881. Elevator PCU (Right Inboard) Ram Transducer Position Signal Out of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16031.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.
 - (a) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - (b) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Examine the right inboard elevator power control unit (PCU), M27212, for incorrect installation or mechanical failure.
 - (a) If you find problem with the installation or mechanical failure, then do these steps:
 - 1) Repair the problem.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If you do not find a problem with the installation and mechanical failure, then continue.
- (2) Adjust the right inboard elevator PCU, M27212. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

EFFECTIVITY
ARO ALL

27-31 TASKS 880-881

D633W103-ARO

Page 298.130
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Disconnect connector DM27212A from the inboard power control unit (PCU) on the right elevator.
- (d) Do a wiring check between these pins of connector DM27221AC (for ACE-R) and connector DM27212A (at the elevator PCU) (WDM 27-31-14):

DM27221AC	DM27212A
pin E13	pin 7
pin E12	pin 19

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27212A to the inboard PCU on the right elevator.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27212A to the inboard PCU on the right elevator.
- (4) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-31 TASK 881

D633W103-ARO

Page 298.131
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the right inboard elevator PCU, M27212.

These are the tasks:

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then (27-31 TASK 882).

————— **END OF TASK** —————

882. Elevator PCU (Right Outboard) Ram Transducer Position Signal Out of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16032.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.
 - (a) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - (b) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Examine the right outboard elevator power control unit (PCU), M27211, for incorrect installation or mechanical failure.
 - (a) If you find problem with the installation or mechanical failure, then do these steps:
 - 1) Repair the problem.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (b) If you do not find a problem with the installation and mechanical failure, then continue.
- (2) Adjust the right outboard elevator PCU, M27211. To adjust it, do this task: Elevator Adjustment (Rigging), AMM TASK 27-31-00-800-801.
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASKS 881-882

D633W103-ARO

Page 298.132
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the feedback wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27211A from the outboard power control unit (PCU) on the right elevator.
- (d) Do a wiring check between these pins of connector DM27122AC (for ACE-L2) and connector DM27211A (at the elevator PCU) (WDM 27-31-13):

DM27122AC	DM27211A
pin E13	pin 7
pin E12	pin 19

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27211A to the outboard PCU on the right elevator.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27211A to the outboard PCU on the right elevator.
- (4) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 882

D633W103-ARO

Page 298.133
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the right outboard elevator PCU, M27211.

These are the tasks:

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then (27-31 TASK 881).

————— **END OF TASK** —————

883. Left Elevator Surface is Inoperative - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16048.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
- (a) If one or more maintenance messages show on the ground test display, then do these steps:
- 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.

EFFECTIVITY
ARO ALL

27-31 TASKS 882-883

D633W103-ARO

Page 298.134
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) Exchange the ACE for M27121 and M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Actuator Confidence.
 - (a) If the same maintenance message “follows” the ACE that was exchanged, then the fault is isolated to the ACE. You need to replace that ACE with a known good unit and perform the Actuator Confidence test again.
 - (b) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - (c) If no maintenance message shows on the ground test display (this means that the test passes), then do these steps:

NOTE: If the test passes, then one of the ACEs, that controls the left elevator, has a fault that can be dangerous. The two ACEs must be replaced to prevent this danger.

 - 1) Replace the ACEs recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

————— **END OF TASK** —————

884. Right Elevator Surface is Inoperative - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16049.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If one or more maintenance messages show on the ground test display, then do these steps:
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - (b) Exchange the ACE for M27122 and M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - a) If the same maintenance message “follows” the ACE that was exchanged, then the fault is isolated to the ACE. You need to replace that ACE with a known good unit and perform the Actuator Confidence test again.
 - (c) If no maintenance message shows on the ground test display, (this means that the test passes), then do these steps:

NOTE: If the test passes, then one of the ACEs that controls the right elevator has a fault that can be dangerous. The two ACEs must be replaced to prevent this danger.
 - (d) Replace the ACE's recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801

EFFECTIVITY
ARO ALL

27-31 TASKS 883-884

D633W103-ARO

Page 298.135
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (e) Do the ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 1) If the elevator surface is still inoperative, and no maintenance message shows on the ground test display, (this means that the test passes), then do this task: Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801.

NOTE: It is necessary to change both PCUs because this condition can be caused by a faulty delta P sensor in one of the right elevator PCUs. The delta P sensors are not line replaceable units (LRUs), so the entire PCU will have to be replaced.
- (f) Run the full actuation confidence test to isolate which elevator PCU is causing the message.
 - 1) If the ACTUATOR PRESS SNSR EICAS message appears after replacing both ACEs and PCUs then you need to check the wiring between the ACEs and PCUs. Check the connectors and grounds for corrosion and check the wiring for continuity.

NOTE: If there is no problem with either the ACEs or PCUs (or they have all been replaced with new units, then the problem must be in the wiring between them.

————— **END OF TASK** —————

885. Elevator PCU (Left Inboard) Failed the ACE Monitor Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16050.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-31 TASKS 884-885

D633W103-ARO

Page 298.136
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(3) Do this check of the feedback wiring:

- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27112A from the inboard power control unit (PCU) on the left elevator.
- (d) Do a wiring check between these pins of connector DM27321AC (for ACE-C) and connector DM27112A (at the elevator PCU) (WDM 27-31-12):

DM27321AC

pin E13	.....	pin 7
pin E12	.....	pin 19
pin A12	.....	pin 5
pin B12	.....	pin 15

DM27112A

(e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27112A to the inboard PCU on the left elevator.
- 3) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove these safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- 1) Re-connect connector DM27112A to the inboard PCU on the left elevator.

EFFECTIVITY
ARO ALL

27-31 TASK 885

D633W103-ARO

Page 298.137
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 3) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (4) Replace the left inboard elevator PCU, M27112.

These are the tasks:

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

886. Right Elevator Surface Actuation Confidence Test Failed - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-10125, 27-10467, 27-10470, 27-10473, 27-10476, 27-10481.

B. Initial Evaluation

NOTE: Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display on the MAT. Look for these messages: 27-16049, 27-11105, 27-10129, 27-10131, 27-27-10122, 27-10123, 27-10125. If more than one of these messages show, then do the fault isolation procedures in this sequence: 27-16049, 27-11105, 27-10129, 27-10131, 27-27-10122, 27-10123, 27-10125. For example, if 27-16049 shows, then do its procedure first.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Examine the two elevator power control units (PCU) for the right elevator to see if they are mechanically disconnected from the elevator or the stabilizer.
 - (a) If one of the elevator PCUs is disconnected or damaged, then do these steps:

EFFECTIVITY
ARO ALL

27-31 TASKS 885-886

D633W103-ARO

Page 298.138
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Replace the applicable elevator PCU, M27211 or M27212.
These are the tasks:
Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,
Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.
 - a) Repair or replace all other damaged parts.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
- (2) Do this test of the outboard PCU for the right elevator:
- (a) Set the C and L FLT CONTROL HYD VALVE PWR switches for the TAIL to the SHUTOFF position.
 - (b) Set the R FLT CONTROL HYD VALVE PWR switch for the TAIL to the NORM position.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (c) For the right hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (d) Find the two ELEVATOR POSITION indications that are on the right side of the flight controls maintenance page 2 (on the MFD). Monitor the bottom of the two indications. At the same time look at the elevator to see if it moves.
- (e) Push and hold one of the control columns fully forward.
 - 1) Look at the right elevator and make sure it is fully down.
NOTE: You do not need to measure the elevator movement. It is satisfactory if you can see that it moved down.
 - 2) Make sure the ELEVATOR POSITION indication shows -2.80 to -3.20.
 - 3) Make sure the ELEVATOR DELTA PRESS indication (the bottom one on the right side of the maintenance page) shows +1700 to +3500.
NOTE: This shows that the elevator PCU is fully retracted.
- (f) Pull and hold one of the control columns fully aft.
 - 1) Look at the right elevator and make sure it is fully up.
NOTE: You do not need to measure the elevator movement. It is satisfactory if you can see that it moved up.
 - 2) Make sure the ELEVATOR POSITION indication shows +3.30 to +3.70.
 - 3) Make sure the ELEVATOR DELTA PRESS indication (the bottom one on the left side of the maintenance page) shows -1700 to -3500.
- (g) Release the control column.
 - 1) Make sure the right elevator is in the neutral position.
NOTE: You do not need to measure the elevator position. It is satisfactory if you can see that it is approximately level.

EFFECTIVITY
ARO ALL

27-31 TASK 886

D633W103-ARO

Page 298.139
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Make sure the ELEVATOR POSITION indication shows -0.10 to +0.10.
- (h) If the elevator or the indications did not operate correctly (as specified in the steps above), then do these steps:
 - 1) Replace the outboard PCU for the right elevator, M27211.
These are the tasks:
Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,
Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
- (i) If the elevator and the indications operated correctly, then continue.
- (3) Do this test of the inboard PCU on the right elevator:
 - (a) Set the C and R FLT CONTROL HYD VALVE PWR switches for the TAIL to the SHUTOFF position.
 - (b) Set the L FLT CONTROL HYD VALVE PWR switch for the TAIL to the NORM position.



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (c) For the left hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (d) Find the two ELEVATOR POSITION indications that are on the right side of the flight controls maintenance page 2 (on the MFD). Monitor the top of the two indications. At the same time look at the elevator to see if it moves.
- (e) Push and hold one of the control columns fully forward.
 - 1) Look at the right elevator and make sure it is fully down.
NOTE: You do not need to measure the elevator movement. It is satisfactory if you can see that it moved down.
 - 2) Make sure the ELEVATOR POSITION indication shows -2.80 to -3.20.
 - 3) Make sure the ELEVATOR DELTA PRESS indication (the top one on the right side of the maintenance page) shows +1700 to +3500.
- (f) Pull and hold one of the control columns fully aft.
 - 1) Look at the right elevator and make sure it is fully up.
NOTE: You do not need to measure the elevator movement. It is satisfactory if you can see that it moved up.
 - 2) Make sure the ELEVATOR POSITION indication shows +3.30 to +3.70.
 - 3) Make sure the ELEVATOR DELTA PRESS indication (the top one on the right side of the maintenance page) shows -1700 to -3500.
- (g) Release the control column.

EFFECTIVITY
ARO ALL

27-31 TASK 886

D633W103-ARO

Page 298.140
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Make sure the right elevator is in the neutral position.
NOTE: You do not need to measure the elevator position. It is satisfactory if you can see that it is approximately level.
- 2) Make sure the ELEVATOR POSITION indication shows -0.10 to +0.10.
- (h) If the elevator or the indications did not operate correctly (as specified in the steps above), then do these steps:
 - 1) Replace the inboard PCU on the right elevator, M27212.
These are the tasks:
Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,
Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (i) If the elevator and the indications operated correctly, then continue.
- (4) Replace the outboard PCU on the right elevator, M27211.
These are the tasks:
Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,
Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.
NOTE: The steps above try to find which PCU is bad. But, the steps cannot find all of the possible problems that the PCUs can have. Thus, if you did not find a problem when you did the steps above, do these steps to replace the PCUs.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the inboard PCU on the right elevator, M27212.
These are the tasks:
Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,
Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Actuator Confidence.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

887. Left Inboard Elevator PCU Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11114.

EFFECTIVITY
ARO ALL

27-31 TASKS 886-887

D633W103-ARO

Page 298.141
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation wiring for the power control unit (PCU) transducers:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27112A from the left inboard (LIB) elevator PCU.
- (d) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27112A at the LIB PCU (WDM 27-31-12):

EFFECTIVITY
ARO ALL

27-31 TASK 887

D633W103-ARO

Page 298.142
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

DM27321AC

pin D12
pin E14
pin E15

DM27112A

pin 18
pin 12
pin 13

- (e) Check for a short to ground for these pins:

DM27112A

pin 12
pin 13
pin 18

GROUND

ground
ground
ground

- (f) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 887

D633W103-ARO

Page 298.143
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

DM27112A	DM27112A
pin 12	pin 1
pin 12	pin 2
pin 12	pin 3
pin 12	pin 5
pin 12	pin 7
pin 12	pin 8
pin 12	pin 9
pin 12	pin 11
pin 12	pin 13
pin 12	pin 15
pin 12	pin 16
pin 12	pin 17
pin 12	pin 18
pin 12	pin 19
pin 13	pin 1
pin 13	pin 2
pin 13	pin 3
pin 13	pin 5
pin 13	pin 7
pin 13	pin 8
pin 13	pin 9
pin 13	pin 11
pin 13	pin 15
pin 13	pin 16
pin 13	pin 17
pin 13	pin 18
pin 13	pin 19
pin 18	pin 1
pin 18	pin 2
pin 18	pin 3
pin 18	pin 5
pin 18	pin 7
pin 18	pin 8
pin 18	pin 9
pin 18	pin 11
pin 18	pin 15
pin 18	pin 16
pin 18	pin 17
pin 18	pin 19

- (g) Disconnect connector DM27111B.
- (h) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 887

D633W103-ARO

Page 298.144
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27112A

pin 12 pin 2
pin 12 pin 3
pin 12 pin 5
pin 12 pin 6
pin 13 pin 2
pin 13 pin 3
pin 13 pin 5
pin 13 pin 6
pin 18 pin 2
pin 18 pin 3
pin 18 pin 5
pin 18 pin 6

DM27111B

pin 2
pin 3
pin 5
pin 6
pin 2
pin 3
pin 5
pin 6
pin 2
pin 3
pin 5
pin 6

- (i) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27112A to the PCU.
 - 3) Re-connect connector DM27111B.
 - 4) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Remove these safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Elevator Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (j) If you do not find a problem with the wiring, then continue.
- (k) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (l) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU

EFFECTIVITY
ARO ALL

27-31 TASK 887

D633W103-ARO

Page 298.145
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the left inboard elevator PCU, M27112.

These are the tasks:

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Left Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

888. Right Inboard Elevator PCU Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11116.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.

EFFECTIVITY
ARO ALL

27-31 TASKS 887-888

D633W103-ARO

Page 298.146
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.
- These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation wiring for the power control unit (PCU) transducers:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27212A from the right inboard (RIB) elevator PCU.
- (d) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27212A at the RIB PCU (WDM 27-31-14):

DM27221AC		DM27212A
pin D12	.....	pin 18
pin E14	.....	pin 12
pin E15	.....	pin 13

- (e) Check for a short to ground for these pins:

DM27212A	GROUND
pin 12	 ground
pin 13	 ground
pin 18	 ground

- (f) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 888

D633W103-ARO

Page 298.147
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

DM27212A	DM27212A
pin 12	pin 1
pin 12	pin 2
pin 12	pin 3
pin 12	pin 5
pin 12	pin 7
pin 12	pin 8
pin 12	pin 9
pin 12	pin 11
pin 12	pin 13
pin 12	pin 15
pin 12	pin 16
pin 12	pin 17
pin 12	pin 18
pin 12	pin 19
pin 13	pin 1
pin 13	pin 2
pin 13	pin 3
pin 13	pin 5
pin 13	pin 7
pin 13	pin 8
pin 13	pin 9
pin 13	pin 11
pin 13	pin 15
pin 13	pin 16
pin 13	pin 17
pin 13	pin 18
pin 13	pin 19
pin 18	pin 1
pin 18	pin 2
pin 18	pin 3
pin 18	pin 5
pin 18	pin 7
pin 18	pin 8
pin 18	pin 9
pin 18	pin 11
pin 18	pin 15
pin 18	pin 16
pin 18	pin 17
pin 18	pin 19

- (g) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 888

D633W103-ARO

Page 298.148
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27212A

pin 12 pin 2
pin 12 pin 3
pin 12 pin 5
pin 12 pin 6
pin 13 pin 2
pin 13 pin 3
pin 13 pin 5
pin 13 pin 6
pin 18 pin 2
pin 18 pin 3
pin 18 pin 5
pin 18 pin 6

DM27211B

pin 2
pin 3
pin 5
pin 6
pin 2
pin 3
pin 5
pin 6
pin 2
pin 3
pin 5
pin 6

(h) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27212A to the PCU.
- 3) Re-connect connector DM27211B.
- 4) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 5) Remove the safety tag and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (i) If you do not find a problem with the wiring, then continue.
- (j) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (k) Make sure that these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR

EFFECTIVITY
ARO ALL

27-31 TASK 888

D633W103-ARO

Page 298.149
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right inboard elevator PCU, M27212.

These are the tasks:

- Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

889. Right Outboard Elevator PCU Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11117.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-31 TASKS 888-889

D633W103-ARO

Page 298.150
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
- 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the excitation wiring for the power control unit (PCU) transducers:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27211A from the right outboard (ROB) elevator PCU.
- (d) Do a wiring check between these pins of connector DM27122AC at the E1-1 shelf and connector DM27211A at the ROB PCU (WDM 27-31-13):

DM27122AC	DM27211A
pin D12	pin 18
pin E14	pin 12
pin E15	pin 13

- (e) Check for a short to ground for these pins:

DM27211A	GROUND
pin 12	ground
pin 13	ground
pin 18	ground

- (f) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 889

D633W103-ARO

Page 298.151
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

DM27211A	DM27211A
pin 12	pin 1
pin 12	pin 2
pin 12	pin 3
pin 12	pin 5
pin 12	pin 7
pin 12	pin 8
pin 12	pin 9
pin 12	pin 11
pin 12	pin 13
pin 12	pin 15
pin 12	pin 16
pin 12	pin 17
pin 12	pin 18
pin 12	pin 19
pin 13	pin 1
pin 13	pin 2
pin 13	pin 3
pin 13	pin 5
pin 13	pin 7
pin 13	pin 8
pin 13	pin 9
pin 13	pin 11
pin 13	pin 15
pin 13	pin 16
pin 13	pin 17
pin 13	pin 18
pin 13	pin 19
pin 18	pin 1
pin 18	pin 2
pin 18	pin 3
pin 18	pin 5
pin 18	pin 7
pin 18	pin 8
pin 18	pin 9
pin 18	pin 11
pin 18	pin 15
pin 18	pin 16
pin 18	pin 17
pin 18	pin 19

- (g) Disconnect connector DM27212B.
- (h) Check for a short between these pins:

EFFECTIVITY
ARO ALL

27-31 TASK 889

D633W103-ARO

Page 298.152
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27211A

pin 12 pin 2
pin 12 pin 3
pin 13 pin 2
pin 13 pin 3
pin 18 pin 2
pin 18 pin 3

DM27212B

- (i) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27211A to the PCU.
 - 3) Re-connect connector DM27212B.
 - 4) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 5) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Elevator Position.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (j) If you do not find a problem with the wiring, then continue.
- (k) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (l) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

EFFECTIVITY
ARO ALL

27-31 TASK 889

D633W103-ARO

Page 298.153
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

- (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the right outboard elevator PCU, M27211.

These are the tasks:

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Right Aileron Position.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

890. Column Force Transducer (left 2) Transducer Signal Out of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16026.

B. Initial Evaluation

NOTE: This message can only occur when you do the Column Force Transducer ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

- (1) Adjust the left 2 column force transducer, M27139. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer.

NOTE: When you do the Column Force Transducer test on the MAT, monitor the COLUMN FORCE indication on maintenance page 1 of the flight controls maintenance pages. When the MAT tells you to move the column fully forward, do not move it fully forward. Alternatively, move the column forward until the COLUMN FORCE indications (on the maintenance page) show 85.0 to 99.0 (hold it in this position for a minimum of 5 seconds). If you move the column fully forward the test will fail.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASKS 889-890

D633W103-ARO

Page 298.154
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Disconnect connector DM27139B from the left column force transducer, M27139.
 - (b) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector DM27321AA at the E2-5 shelf and connector DM27139B at the left column force transducer, M27139 (WDM 27-31-12):

DM27321AA	DM27139B
pin K13	pin 6
pin K14	pin 5

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27139B.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove these safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27139B.

EFFECTIVITY
ARO ALL

27-31 TASK 890

D633W103-ARO

Page 298.155
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left column force transducer, M27139. These are the tasks:
- Column Force Transducer Removal, AMM TASK 27-31-08-000-801
 - Column Force Transducer Installation, AMM TASK 27-31-08-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

891. Column Force Transducer (Right 1) Transducer Signal Out of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16027.

B. Initial Evaluation

NOTE: This message can only occur when you do the Column Force Transducer ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

EFFECTIVITY
ARO ALL

27-31 TASKS 890-891

D633W103-ARO

Page 298.156
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Adjust the right 1 column force transducer, M27239. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer.

NOTE: When you do the Column Force Transducer test on the MAT, monitor the COLUMN FORCE indication on maintenance page 1 of the flight controls maintenance pages. When the MAT tells you to move the column fully forward, do not move it fully forward. Alternatively, move the column forward until the COLUMN FORCE indications (on the maintenance page) show 85.0 to 99.0 (hold it in this position for a minimum of 5 seconds). If you move the column fully forward the test will fail.

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.

- (2) Do this check of the feedback wiring:

- (a) Disconnect connector DM27239A from the right column force transducer, M27239.
- (b) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Remove the left 2 actuator control electronics (ACE-L2), M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector DM27122AA at the E1-1 shelf and connector DM27239A at the right column force transducer, M27239 (WDM 23-31-13):

<u>DM27122AA</u>	<u>DM27239A</u>
pin K13	pin 6
pin K14	pin 5

- (e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27239A.
- 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR

EFFECTIVITY
ARO ALL

27-31 TASK 891

D633W103-ARO

Page 298.157
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
 - g) Re-connect connector DM27239A.
- (3) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right column force transducer, M27239. These are the tasks:
 - Column Force Transducer Removal, AMM TASK 27-31-08-000-801
 - Column Force Transducer Installation, AMM TASK 27-31-08-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

892. Column Force Transducer (Right 2) Transducer Signal Out of Range - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16028.

EFFECTIVITY
ARO ALL

27-31 TASKS 891-892

D633W103-ARO

Page 298.158
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: This message can only occur when you do the Column Force Transducer ground test on the MAT. It will occur if the ground test is failed. If the ground test is passed the maintenance message will not show on the ground test display.

C. Fault Isolation Procedure

(1) Adjust the right 2 column force transducer, M27239. To adjust it, do this task: Control Column Adjustment (Rigging), AMM TASK 27-31-00-800-802.

(a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer.

NOTE: When you do the Column Force Transducer test on the MAT, monitor the COLUMN FORCE indication on maintenance page 1 of the flight controls maintenance pages. When the MAT tells you to move the column fully forward, do not move it fully forward. Alternatively, move the column forward until the COLUMN FORCE indications (on the maintenance page) show 85.0 to 99.0 (hold it in this position for a minimum of 5 seconds). If you move the column fully forward the test will fail.

(b) If the maintenance message does not show on the ground test display, you corrected the fault.

(c) If the maintenance message shows on the ground test display, then continue.

(2) Do this check of the feedback wiring:

(a) Disconnect connector DM27239B from the right column force transducer, M27239.

(b) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

(c) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

(d) Do a wiring check between these pins of connector DM27221AA at the E5-2 shelf and connector DM27239B at the right column force transducer, M27239 (WDM 23-31-14):

DM27221AA	DM27239B
pin K13	pin 6
pin K14	pin 5

(e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27239B.

EFFECTIVITY
ARO ALL

27-31 TASK 892

D633W103-ARO

Page 298.159
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
 - g) Re-connect connector DM27239B.
- (3) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Make sure that these circuit breakers are closed on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right column force transducer, M27239.

These are the tasks:

Column Force Transducer Removal, AMM TASK 27-31-08-000-801,

Column Force Transducer Installation, AMM TASK 27-31-08-400-801.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Column Force Transducer (see the NOTE in the Initial Evaluation above).

EFFECTIVITY
ARO ALL

27-31 TASK 892

D633W103-ARO

Page 298.160
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

893. Right Outboard Elevator PCU Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15020.

B. Initial Evaluation

- (1) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- (a) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the power wiring:

- (a) Open this circuit breaker and attach safety tag on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- (c) Remove the PSA-R, M24201, from the E5-1 shelf.
- (d) Disconnect connector DM27212A from the right inboard elevator power control unit (RIB PCU), M27212.
- (e) Do a wiring check between these pins of connector DM27212A for the RIB PCU and connector DM24201AD at the PSA-R (WDM 27-31-11):

DM27212A		DM24201AD
pin 16	.....	pin 34
pin 2	.....	pin 34

- (f) Disconnect connector DM27211B from the right outboard elevator power control unit (ROB PCU), M27211.
- (g) Do a wiring check between these pins of connector DM27211B for the ROB PCU and connector DM24201AD at the PSA-R (WDM 27-31-11):

EFFECTIVITY
ARO ALL

27-31 TASKS 892-893

D633W103-ARO

Page 298.161
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27211B

pin 3 pin 34
pin 5 pin 34

DM24201AD

- (h) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connectors DM27212A and DM27211B to the PCUs.
 - 3) Re-install the PSA-R, M24201.
 - 4) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	3	C24672	R PSA TRU PWR

- 5) Remove the safety tag and close this circuit breaker on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-R	PFC BAT INTLK

- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (i) If you do not find a problem with the wiring, then continue.
- (2) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (3) Measure the resistance between these pins of connector DM27212A on the RIB PCU, M27212 (WDM 27-31-11).
 - (a) Pin 2 and pin 1, specified resistance 50-70 ohms.
 - (b) Pin 16 and pin 17, specified resistance 65-85 ohms.
 - (c) If the resistance is not in the range specified for each pair of pins, then do these steps:
 - 1) Replace the right inboard elevator PCU, M27212. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 893

D633W103-ARO

Page 298.162
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) If the resistance is in the range specified for each pair of pins, then continue.
- (4) Measure the resistance between these pins of connector DM27211B on the ROB PCU, M27211 (WDM 27-31-11).
- (a) Pin 3 and pin 2, specified resistance 50 - 70 ohms.
- (b) Pin 5 and pin 6, specified resistance 65 - 85 ohms.
- (c) If the resistance is not in the range specified for each pair of pins, then do these steps:
- 1) Replace the right outboard elevator PCU, M27211. These are the tasks:
 - Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801
 - Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the resistance is in the range specified for each pair of pins, then continue.
- (5) Replace the circuit breaker

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— END OF TASK —————

894. Elevator Feel Actuator (Right) Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15035.

B. Initial Evaluation

- (1) Open this circuit breaker and attach safety tag on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	CBB6-C	ELEV FEEL (C)

- (a) If the circuit breaker opens when you try to close it, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Open.
- (2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
- (a) If the maintenance message shows on the ground test display, then do this check:
- 1) If the circuit breaker is open, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Open.
 - 2) If the circuit breaker stayed closed, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Closed.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-31 TASKS 893-894

D633W103-ARO

Page 298.163
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure - Circuit Breaker Closed

- (1) Replace the PSA-C, M24301.

These are the tasks:

Power Supply Assembly Removal, AMM TASK 24-35-01-000-801,

Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

D. Fault Isolation Procedure - Circuit Breaker Open

- (1) Do this check of the power wiring:

- (a) Open this circuit breaker and attach safety tag on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- (b) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- (c) Remove the PSA-C, M24301.
- (d) Disconnect connector DM27021 from the right elevator feel actuator, M27021.
- (e) Do a wiring check between these pins of connector DM27021 at the elevator feel actuator and connector DM24301AD at the PSA-C (WDM 27-31-15):

<u>DM27021</u>	<u>DM24301AD</u>
pin 1	pin 24

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27021 to the elevator feel actuator.
 - 3) Re-install the PSA-C.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

EFFECTIVITY
ARO ALL

27-31 TASK 894

D633W103-ARO

Page 298.164
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Remove the safety tag and close this circuit breaker on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
- 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (2) Install a new PSA-C, M24301. To install it, (AMM TASK 24-35-01-400-801).
- (a) Re-connect connector DM27021 to the elevator feel actuator.
- (b) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	5	C24676	C PSA BAT PWR
M	15	C24674	C PSA TRU PWR

- (c) Make sure that this circuit breaker is closed on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
- (e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the left elevator feel actuator, M27021.

These are the tasks:

Elevator Feel Actuators Removal, AMM TASK 27-31-07-000-801,

Elevator Feel Actuators - Installation, AMM TASK 27-31-07-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Elevator Feel System.
- (b) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

895. Elevator PCU (Left Outboard) Failed the ACE Monitor Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16051.

EFFECTIVITY
ARO ALL

27-31 TASKS 894-895

D633W103-ARO

Page 298.165
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27111A from the outboard power control unit (PCU) on the left elevator.
- (d) Do a wiring check between these pins of connector DM27121AC (for ACE-L1) and connector DM27111A (at the elevator PCU) (WDM 27-31-11):

EFFECTIVITY
ARO ALL

27-31 TASK 895

D633W103-ARO

Page 298.166
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27121AC

pin E13 pin 7
pin E12 pin 19
pin A12 pin 5
pin B12 pin 15

DM27111A

(e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27111A to the outboard PCU on the left elevator.
- 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.

(f) If you do not find a problem with the wiring, then continue.

- 1) Re-connect connector DM27111A to the outboard PCU on the left elevator.
- 2) Re-install the ACE-L, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 3) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (4) Replace the left outboard elevator PCU, M27111.

EFFECTIVITY
ARO ALL

27-31 TASK 895

D633W103-ARO

Page 298.167
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

(a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

896. Elevator PCU (Right Inboard) Failed the ACE Monitor Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16052.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,

Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the right supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU

EFFECTIVITY
ARO ALL

27-31 TASKS 895-896

D633W103-ARO

Page 298.168
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27212A from the inboard power control unit (PCU) on the right elevator.
- (d) Do a wiring check between these pins of connector DM27221AC (for ACE-R) and connector DM27212A (at the elevator PCU) (WDM 27-31-14):

DM27221AC	DM27212A
pin E13	pin 7
pin E12	pin 19
pin A12	pin 5
pin B12	pin 15

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27212A to the inboard PCU on the right elevator.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
 - 1) Re-connect connector DM27212A to the inboard PCU on the right elevator.
 - 2) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 896

D633W103-ARO

Page 298.169
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Make sure that these circuit breakers are closed on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (4) Replace the right inboard elevator PCU, M27212.

These are the tasks:

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

897. Elevator PCU (Right Outboard) Failed the ACE Monitor Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16053.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,

Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.

EFFECTIVITY
ARO ALL

27-31 TASKS 896-897

D633W103-ARO

Page 298.170
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the feedback wiring:
- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27211A from the outboard power control unit (PCU) on the right elevator.
- (d) Do a wiring check between these pins of connector DM27122AC (for ACE-L2) and connector DM27211A (at the elevator PCU) (WDM 27-31-13):

DM27122AC	DM27211A
pin E13	pin 7
pin E12	pin 19
pin A12	pin 5
pin B12	pin 15

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27211A to the outboard PCU on the right elevator.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-31 TASK 897

D633W103-ARO

Page 298.171
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) If you do not find a problem with the wiring, then continue.
- 1) Re-connect connector DM27211A to the outboard PCU on the right elevator.
 - 2) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (4) Replace the right outboard elevator PCU, M27211.

These are the tasks:

Elevator Power Control Units (PCU) - Removal, AMM TASK 27-31-09-000-801,

Elevator Power Control Units (PCU) - Installation, AMM TASK 27-31-09-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Control Electronics Monitors.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

898. Control Column Damper Shows Red or No Color

A. Fault Isolation Procedure

- (1) If a minimum of 1/16 of an inch (in width) of green shows in the window of the damper, then the damper is serviceable.

NOTE: The damper must be at room temperature to get the correct indication.

- (2) If less than 1/16 of an inch of green shows, then replace the damper.

These are the tasks:

Column Damper Removal, AMM TASK 27-31-05-000-801,

Column Damper Installation, AMM TASK 27-31-05-400-801.

————— END OF TASK —————

899. Pitch Rate Transducer (Left 1) Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13070.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.

EFFECTIVITY
ARO ALL

27-31 TASKS 897-899

D633W103-ARO

Page 298.172
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27140. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (3) Replace the left 1 pitch rate transducer, M27140. These are the tasks:
 - Pitch Rate Sensor - Removal, AMM TASK 27-31-11-000-801
 - Pitch Rate Sensor - Installation, AMM TASK 27-31-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
 - a) If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
 - 27-13070
 - 27-13071
 - 27-13072
 - 27-13073
 - 27-13074
 - <1> If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
 - b) If an "ACE internal fault or is in Direct Mode" message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
 - 27-16041
 - 27-16042
 - 27-16043
 - 27-16044
 - c) If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.
 - d) If one of the following four "ACE internal fault" messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:

EFFECTIVITY
ARO ALL

27-31 TASK 899

D633W103-ARO

Page 298.173
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 27-13000
- 27-13001
- 27-13002
- 27-13003

<1> If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.

NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.

NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.

- 3) If the maintenance message shows on the ground test display, then continue.
- (4) Exchange the ACE for M27121. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
- (5) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
 - a) If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
 - 27-13070
 - 27-13071
 - 27-13072
 - 27-13073
 - 27-13074
 - <1> If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
 - b) If an "ACE internal fault or is in Direct Mode" message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
 - 27-16041
 - 27-16042
 - 27-16043
 - 27-16044

EFFECTIVITY
ARO ALL

27-31 TASK 899

D633W103-ARO

Page 298.174
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- c) If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.
- d) If one of the following four “ACE internal fault” messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:
- 27-13000
 - 27-13001
 - 27-13002
 - 27-13003
- <1> If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.
- NOTE:** The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.
- NOTE:** The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.
- 3) If the maintenance message shows on the ground test display, then continue.
- (6) Do this check of the feedback wiring:
- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27140 from the left 1 pitch rate transducer, M27140.
- (d) Do a wiring check between these pins of connector DM27121AB (for ACE-L1) and connector DM27140 (at the left 1 pitch rate transducer) (WDM 27-31-16):

DM27121AB		DM27140
pin K08	.....	pin 2
pin K09	.....	pin 3
pin K10	.....	pin 10

EFFECTIVITY
ARO ALL

27-31 TASK 899

D633W103-ARO

Page 298.175
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (e) Do a wiring check between these pins of connector DM27121AC (for ACE-L1) and connector DM27140 (at the left 1 pitch rate transducer) (WDM 27-31-16):

DM27121AC	DM27140
pin C13	pin 7
pin C15	pin 5
pin C14	pin 4

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27140 to the pitch rate transducer, M27140.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Transducer Pitch Transducer.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
 - <1> If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
 - 27-13070
 - 27-13071
 - 27-13072
 - 27-13073
 - 27-13074
 - <a> If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
 - <2> If an "ACE internal fault or is in Direct Mode" message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
 - 27-16041

EFFECTIVITY
ARO ALL

27-31 TASK 899

D633W103-ARO

Page 298.176
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 27-16042
- 27-16043
- 27-16044

<3> If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.

<4> If one of the following four "ACE internal fault" messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:

- 27-13000
- 27-13001
- 27-13002
- 27-13003

<a> If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.

NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.

NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.

————— **END OF TASK** —————

900. Pitch Rate Transducer (Left 2) Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13071.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation procedure below.
- (b) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
- 1) If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
- 27-13070
 - 27-13071
 - 27-13072
 - 27-13073

EFFECTIVITY
ARO ALL

27-31 TASKS 899-900

D633W103-ARO

Page 298.177
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 27-13074
 - a) If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
- 2) If an “ACE internal fault or is in Direct Mode” message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
 - 27-16041
 - 27-16042
 - 27-16043
 - 27-16044
- 3) If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.
- 4) If one of the following four “ACE internal fault” messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:
 - 27-13000
 - 27-13001
 - 27-13002
 - 27-13003
 - a) If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.

NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.

NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.
- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27141. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (3) Replace the left 2 pitch rate transducer, M27141. These are the tasks:
 - Pitch Rate Sensor - Removal, AMM TASK 27-31-11-000-801
 - Pitch Rate Sensor - Installation, AMM TASK 27-31-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.

EFFECTIVITY
ARO ALL

27-31 TASK 900

D633W103-ARO

Page 298.178
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
 - a) If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
 - 27-13070
 - 27-13071
 - 27-13072
 - 27-13073
 - 27-13074

<1> If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
 - b) If an “ACE internal fault or is in Direct Mode” message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
 - 27-16041
 - 27-16042
 - 27-16043
 - 27-16044
 - c) If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.
 - d) If one of the following four “ACE internal fault” messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:
 - 27-13000
 - 27-13001
 - 27-13002
 - 27-13003

<1> If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.

NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.

NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.
- 3) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-31 TASK 900

D633W103-ARO

Page 298.179
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Exchange the ACE for M27122. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (6) Do this check of the feedback wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27140 from the left 2 pitch rate transducer, M27141.
- (d) Do a wiring check between these pins of connector DM27122AB (for ACE-L2) and connector DM27141 (at the left 2 pitch rate transducer) (WDM 27-31-16):

DM27122AB	DM27141
pin K08	pin 2
pin K09	pin 3
pin K10	pin 10

- (e) Do a wiring check between these pins of connector DM27122AC (for ACE-L2) and connector DM27141 (at the left 2 pitch rate transducer) (WDM 27-31-16):

DM27122AC	DM27141
pin C13	pin 7
pin C15	pin 5
pin C14	pin 4

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27141 to the left 2 pitch rate transducer, M27141.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-31 TASK 900

D633W103-ARO

Page 298.180
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Transducer Pitch Transducer.
- If the maintenance message does not show on the ground test display, then you corrected the fault.
 - If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
 - If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
 - 27-13070
 - 27-13071
 - 27-13072
 - 27-13073
 - 27-13074

<a> If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
 - If an "ACE internal fault or is in Direct Mode" message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
 - 27-16041
 - 27-16042
 - 27-16043
 - 27-16044
 - If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.
 - If one of the following four "ACE internal fault" messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:
 - 27-13000
 - 27-13001
 - 27-13002

EFFECTIVITY
ARO ALL

27-31 TASK 900

D633W103-ARO

Page 298.181
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 27-13003

<a> If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.

NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.

NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.

— END OF TASK —

901. Pitch Rate Transducer (Right 2) Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13072.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation procedure below.
 - (b) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
 - 1) If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
 - 27-13070
 - 27-13071
 - 27-13072
 - 27-13073
 - 27-13074
 - a) If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
 - 2) If an "ACE internal fault or is in Direct Mode" message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
 - 27-16041
 - 27-16042
 - 27-16043
 - 27-16044
 - 3) If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.

EFFECTIVITY
ARO ALL

27-31 TASKS 900-901



777-200/300 FAULT ISOLATION MANUAL

- 4) If one of the following four “ACE internal fault” messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:
- 27-13000
 - 27-13001
 - 27-13002
 - 27-13003
- a) If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.

NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.

NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.

- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27240. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (3) Replace the right 2 pitch rate transducer, M27240. These are the tasks:
 - Pitch Rate Sensor - Removal, AMM TASK 27-31-11-000-801
 - Pitch Rate Sensor - Installation, AMM TASK 27-31-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
 - a) If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
 - 27-13070
 - 27-13071
 - 27-13072
 - 27-13073
 - 27-13074

EFFECTIVITY
ARO ALL

27-31 TASK 901

D633W103-ARO

Page 298.183
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- <1> If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
- b) If an “ACE internal fault or is in Direct Mode” message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
- 27-16041
 - 27-16042
 - 27-16043
 - 27-16044
- c) If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.
- d) If one of the following four “ACE internal fault” messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:
- 27-13000
 - 27-13001
 - 27-13002
 - 27-13003
- <1> If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.
- NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.
- NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.
- 3) If the maintenance message shows on the ground test display, then continue.
- (4) Exchange the ACE for M27321. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:

EFFECTIVITY
ARO ALL

27-31 TASK 901

D633W103-ARO

Page 298.184
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
- 27-13070
 - 27-13071
 - 27-13072
 - 27-13073
 - 27-13074
- <1> If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
- b) If an "ACE internal fault or is in Direct Mode" message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
- 27-16041
 - 27-16042
 - 27-16043
 - 27-16044
- c) If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.
- d) If one of the following four "ACE internal fault" messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:
- 27-13000
 - 27-13001
 - 27-13002
 - 27-13003
- <1> If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.
- NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.
- NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.
- 3) If the maintenance message shows on the ground test display, then continue.
- (6) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-31 TASK 901

D633W103-ARO

Page 298.185
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27240 from the right 2 pitch rate transducer, M27240.
- (d) Do a wiring check between these pins of connector DM27321AB (for ACE-C) and connector DM27240 (at the right 2 pitch rate transducer) (WDM 27-31-16):

DM27321AB	DM27240
pin K08	pin 2
pin K09	pin 3
pin K10	pin 10

- (e) Do a wiring check between these pins of connector DM27321AC (for ACE-C) and connector DM27240 (at the right 2 pitch rate transducer) (WDM 27-31-16):

DM27321AC	DM27240
pin C13	pin 7
pin C15	pin 5
pin C14	pin 4

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27240 to the right 2 pitch rate transducer, M27240.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-C, M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

EFFECTIVITY
ARO ALL

27-31 TASK 901

D633W103-ARO

Page 298.186
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Transducer Pitch Transducer.
- If the maintenance message does not show on the ground test display, then you corrected the fault.
 - If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
 - If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
 - 27-13070
 - 27-13071
 - 27-13072
 - 27-13073
 - 27-13074

<a> If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
 - If an "ACE internal fault or is in Direct Mode" message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
 - 27-16041
 - 27-16042
 - 27-16043
 - 27-16044
 - If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.
 - If one of the following four "ACE internal fault" messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:
 - 27-13000
 - 27-13001
 - 27-13002
 - 27-13003

<a> If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.

NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.

NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.

EFFECTIVITY
ARO ALL

27-31 TASK 901

D633W103-ARO

Page 298.187
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Upper Gust Suppression Transducer Signal Problems - Fault Isolation, 27-21 TASK 852.

————— **END OF TASK** —————

902. Pitch Rate Transducer (Right 1) Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13073.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation procedure below.
- (b) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
- 1) If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
 - 27-13070
 - 27-13071
 - 27-13072
 - 27-13073
 - 27-13074

a) If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
 - 2) If an “ACE internal fault or is in Direct Mode” message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
 - 27-16041
 - 27-16042
 - 27-16043
 - 27-16044
 - 3) If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.
 - 4) If one of the following four “ACE internal fault” messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:
 - 27-13000
 - 27-13001
 - 27-13002
 - 27-13003

EFFECTIVITY
ARO ALL

27-31 TASKS 901-902

D633W103-ARO

Page 298.188
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.

NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.

NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.

- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27241. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (3) Replace the right 1 pitch rate transducer, M27241. These are the tasks:
 - Pitch Rate Sensor - Removal, AMM TASK 27-31-11-000-801
 - Pitch Rate Sensor - Installation, AMM TASK 27-31-11-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
 - a) If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
 - 27-13070
 - 27-13071
 - 27-13072
 - 27-13073
 - 27-13074

<1> If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
 - b) If an "ACE internal fault or is in Direct Mode" message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
 - 27-16041
 - 27-16042
 - 27-16043

EFFECTIVITY
ARO ALL

27-31 TASK 902

D633W103-ARO

Page 298.189
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 27-16044
 - c) If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.
 - d) If one of the following four “ACE internal fault” messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:
 - 27-13000
 - 27-13001
 - 27-13002
 - 27-13003
- <1> If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.
- NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.
- NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.
- 3) If the maintenance message shows on the ground test display, then continue.
- (4) Exchange the ACE for M27221. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
 - a) If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
 - 27-13070
 - 27-13071
 - 27-13072
 - 27-13073
 - 27-13074

EFFECTIVITY
ARO ALL

27-31 TASK 902

D633W103-ARO

Page 298.190
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- <1> If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
- b) If an “ACE internal fault or is in Direct Mode” message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
- 27-16041
 - 27-16042
 - 27-16043
 - 27-16044
- c) If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.
- d) If one of the following four “ACE internal fault” messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:
- 27-13000
 - 27-13001
 - 27-13002
 - 27-13003
- <1> If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.
- NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.
- NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.
- 3) If the maintenance message shows on the ground test display, then continue.
- (6) Do this check of the excitation wiring and feedback wiring:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

EFFECTIVITY
ARO ALL

27-31 TASK 902

D633W103-ARO

Page 298.191
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Disconnect connector DM27241 from the right 1 pitch rate transducer, M27241.
- (d) Do a wiring check between these pins of connector DM27221AB (for ACE-R) and connector DM27241 (at the right 1 pitch rate transducer) (WDM 27-31-16):

DM27221AB	DM27241
pin K08	pin 2
pin K09	pin 3
pin K10	pin 10

- (e) Do a wiring check between these pins of connector DM27221AC (for ACE-R) and connector DM27241 (at the right 1 pitch rate transducer) (WDM 27-31-16):

DM27221AC	DM27241
pin C13	pin 7
pin C15	pin 5
pin C14	pin 4

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27241 to the right 1 pitch rate transducer, M27241.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Transducer Pitch Transducer.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
 - <1> If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
 - 27-13070
 - 27-13071
 - 27-13072

EFFECTIVITY
ARO ALL

27-31 TASK 902

D633W103-ARO

Page 298.192
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 27-13073
- 27-13074

<a> If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.

<2> If an "ACE internal fault or is in Direct Mode" message, as follows, were indicated in the test results screen, follow the applicable FIM Task:

- 27-16041
- 27-16042
- 27-16043
- 27-16044

<3> If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.

<4> If one of the following four "ACE internal fault" messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:

- 27-13000
- 27-13001
- 27-13002
- 27-13003

<a> If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.

NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.

NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.

————— **END OF TASK** —————

903. Multiple Pitch Rate Transducers Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-13074.

B. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Pitch Rate Transducer.
- (2) If failures of the pitch rate transducers have occurred when running the above ground test on the MAT, use the following procedure to identify any actual failed components:
- (a) If the Pitch Rate Transducer System Test fails, with any of the following Maintenance Messages, then check Chapter 27 Primary Flight Controls Existing Faults:
- 27-13070
 - 27-13071

EFFECTIVITY
ARO ALL

27-31 TASKS 902-903

D633W103-ARO

Page 298.193
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 27-13072
 - 27-13073
 - 27-13074
 - 1) If these messages do not appear in Existing Faults, then there are no faulty pitch rate transducers, or the fault is intermittent.
 - (b) If an “ACE internal fault or is in Direct Mode” message, as follows, were indicated in the test results screen, follow the applicable FIM Task:
 - 27-16041
 - 27-16042
 - 27-16043
 - 27-16044
 - (c) If any of the Pitch Rate Transducer maintenance messages are present in Existing Faults after the test, then cycle the power to all three PFCs. Re-check Chapter 27 Primary Flight Controls Existing Faults. If any of the Pitch Rate Transducer maintenance messages are still present, then follow the applicable FIM 27-31 TASKS.
 - (d) If one of the following four “ACE internal fault” messages is present in Existing Faults after the ground test, pressurize all three hydraulic systems:
 - 27-13000
 - 27-13001
 - 27-13002
 - 27-13003
 - 1) If the fault persists, follow the appropriate FIM Task. If the fault clears, it was a nuisance induced by the test.
- NOTE: The above sequence of (check Existing Faults, cycle the PFC power, and pressurize hydraulics) applies to subsequent executions of the Pitch Rate Transducer Test while isolating or trouble shooting the problem.
- NOTE: The pitch rate transducer values may be viewed on Page 1 of the Flight Controls Maintenance Page. This may help confirm a faulty sensor/wiring/ACE path in the case of failures due to large static offsets.

————— **END OF TASK** —————

904. Noise and Vibration During On-Ground Elevator Control Surface Movement - Fault Isolation

A. Description

When the elevator is moved quickly through large position changes, a sudden noise may be heard in the aft galley or the fuselage may shudder. These on-ground noises and vibrations are considered normal for this airplane due to the sudden changes in flow of hydraulic fluid as the elevator PCU quickly starts and stops.

B. Possible Causes

- (1) Sudden changes in fluid volume and flow as the PCU starts to move quickly and then suddenly stops.

NOTE: This is also known as hydraulic hammer.

- (2) Some other unidentified hydraulic or structural problem.

EFFECTIVITY
ARO ALL

27-31 TASKS 903-904

D633W103-ARO

Page 298.194
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Do the following steps to determine if the noise or vibrations are due to hydraulic hammer from sudden PCU movement.
 - (a) Pressurize the main hydraulic power system. To pressurize the hydraulics, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801
 - (b) Slowly move the control column aft from the neutral position until it touches the aft stop.
 - (c) Move the control column slowly forward until it touches the forward stop.
 - (d) Move the control column slowly aft from the forward stop to the neutral position and release the control column.
- (2) If you can still hear the noise or feel a vibration when the control column is moved at the slow speed, additional inspections of the elevator PCUs and surrounding structure may be necessary.

D. Repair Confirmation

- (1) If you cannot hear a noise or feel vibration when the elevator is moved at slow speeds, then there is no problem with the elevator PCU or surrounding structure. If the noise and vibrations only occur when the elevator is moved quickly, then this is acceptable and normal system operation. There is no problem.
 - (a) Remove the hydraulic system power, as necessary. Do the following: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-31 TASK 904

D633W103-ARO

Page 298.195
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

801. Pitch Trim Channel (Right) Trim Up Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10001.

B. Description

- (1) The Right Pitch Trim Channel does not follow the Trim UP command.

C. Possible Causes

- (1) Right Stab Auto Shutdown Relay, K27008
- (2) Right Stabilizer Trim Control Module (STCM) Shutoff Valve, V6
- (3) Right STCM Trim-up Control Solenoid Valve, V2
- (4) Right STCM Trim-up Arm Solenoid Valve, V4
- (5) Right Actuator Control Electronics (ACE), M27221
- (6) Left ACE, M27122
- (7) Right STCM, M27213
- (8) Right Stabilizer Position Module, M27031
- (9) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-R	STAB TRIM

E. Related Data

- (1) WDM 27-41-13
- (2) WDM 27-41-14
- (3) WDM 27-41-15

F. Initial Evaluation

- (1) Do the Stabilizer Mechanical Trim Rate Test (Right Hydraulic System), AMM TASK 27-41-00-700-808.
 - (a) If the Horizontal Stabilizer does not move up or down when you use the Right Hydraulic System, or it moves too slowly, then there is a mechanical problem with the Right Channel of the Stabilizer Trim System (STCM, Hydraulic Motor, or Hydraulic Brake). You must repair the mechanical problem(s) before you do the troubleshooting of the Electrical System below.
 - 1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-41 TASK 801

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 201
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there could be a problem related to the Electrical System. Do this Ground Test on the Maintenance Access Terminal (MAT): 27 Primary Flight Controls, SYSTEM TEST, Stabilizer System (How to Do a Ground Test, AMM TASK 45-10-00-740-819).
 - a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent problem.

G. Fault Isolation Procedure

- (1) Do this check to make sure that the Right Hydraulic System STCM Shutoff Valve, V6 is open.
 - (a) Find the STCM Shutoff Valve, V6 (AMM TASK 27-41-10-000-801).
 - (b) Make sure that the lever on the valve is in the OPEN position.
 - 1) If the lever is not in the OPEN position, then do these steps:
 - a) Disconnect connector DM27213A from the STCM Shutoff Valve (WDM 27-41-13).
 - b) Do a check for 28 VDC between pins 3 and 1 of connector DM27213A.
 - <1> If you find 28V DC, replace the Right Stab Auto Shutdown Relay, K27008.
 - <a> Connect connector DM27213A to the STCM Shutoff Valve.
 - Do the Repair Confirmation at the end of this task.
 - <2> If you do not find 28V DC, continue.
 - c) Do a check for 28 VDC between pins 2 and 1 of connector DM27213A.
 - <1> If you find 28V DC, replace the Right Stabilizer Trim Control Module (STCM) Shutoff Valve, V6. These are the tasks:
 - STCM Shutoff Valve Removal, AMM TASK 27-41-10-000-801
 - STCM Shutoff Valve Installation, AMM TASK 27-41-10-400-801
 - <a> Do the Repair Confirmation at the end of this task.
 - <2> If you do not find 28V DC between pins 2 and 1 of connector DM27213A, replace the Right Stab Auto Shutdown Relay, K27008.
 - <a> Connect connector DM27213A to the STCM Shutoff Valve.
 - Do the Repair Confirmation at the end of this task.
 - I. If the problem continues, examine and repair the wiring between the STCM and the Right Stab Auto Shutdown Relay, K27008 as follows (WDM 27-41-13):

NOTE: The remaining power wiring (from the circuit breaker to the cutout switch and from the switch to the relay) is monitored by the ACE. If this wiring (including the switch and the circuit breaker) were bad, there would be a different maintenance message.

EFFECTIVITY
ARO ALL

27-41 TASK 801

D633W103-ARO

Page 202
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

R STCM
DM27213A

pin 2 pin A3

R STAB AUTO
SHTDN RLY
DK27008

- 2) If the lever on the STCM Shutoff Valve, V6, is in the OPEN position, then continue.
- (2) Disconnect connector DM27213C from the Right STCM, M27213 (WDM 27-41-13).
- (3) Do a check for 28 VDC between pins 2 and 1 of connector DM27213C.
 - (a) If you find 28V DC, replace the Right STCM Trim Up Control Valve, V2. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find 28V DC, examine the wiring between the STCM and the Power Supply Assembly-Right (PSA-R), M24201 as follows (WDM 27-41-13):

R STCM
DM27213C

pin 2 pin 17

PSA-R
DM24201AD

- 1) If you find problems, do these steps:
 - a) Repair the wiring.
 - b) Connect connector DM27213C to the Right STCM, M27213.
 - c) Do the Repair Confirmation at the end of this task.
- (4) Disconnect connector DM27213B from the Right STCM, M27213 (WDM 27-41-14).
- (5) Do a check for 28V DC between pins 2 and 1 of connector DM27213B.
 - (a) If you find 28V DC, replace the Right STCM Trim Up Arm Valve, V4. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find 28V DC between pins 2 and 1 of connector DM27213B, examine the wiring between the STCM and the Power Management Panel-Left, P110 (STAB TRIM ARM circuit breaker, C27612) as follows (WDM 27-41-14).

R STCM
DM27213B

pin 2 pin 11

PWR MGMT
PNL
D11013P

- 1) If you find problems, do these steps:
 - a) Repair the wiring.
 - b) Connect connector DM27213B to the Right STCM, M27213.
 - c) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
ARO ALL

27-41 TASK 801

D633W103-ARO

Page 203
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (6) Exchange the ACE for M27221. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
 - (a) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 1) Do the Repair Confirmation at the end of this task.
- (7) Exchange the ACE for M27122. This is the task: This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
 - (a) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 1) Do the Repair Confirmation at the end of this task.
- (8) Replace the Right STCM, M27213. These are the tasks:
 - Stabilizer Trim Control Modules (STCM) Removal, AMM TASK 27-41-07-000-801
 - Stabilizer Trim Control Modules (STCM) Installation, AMM TASK 27-41-07-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (9) Replace the Right SPM, M27031. These are the tasks:
 - Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801
 - Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
 - (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

802. Pitch Trim Channel (Right) Trim Down Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10003.

B. Description

- (1) The Right Pitch Trim Channel does not follow the Trim DOWN command.

C. Possible Causes

- (1) Right Stab Auto Shutdown Relay, K27008
- (2) Right Stabilizer Trim Control Module (STCM) Shutoff Valve, V6
- (3) Right STCM Trim-Down Control Solenoid Valve, V1
- (4) Right STCM Trim-up Arm Solenoid Valve, V3
- (5) Right ACE, M27221
- (6) Left ACE, M27122
- (7) Right STCM, M27213

EFFECTIVITY
ARO ALL

27-41 TASKS 801-802

D633W103-ARO

Page 204
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (8) Right Stabilizer Position Module, M27031
- (9) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-R	STAB TRIM

E. Related Data

- (1) WDM 27-41-13
- (2) WDM 27-41-14
- (3) WDM 27-41-15

F. Initial Evaluation

- (1) Do the Stabilizer Mechanical Trim Rate Test (Right Hydraulic System), AMM TASK 27-41-00-700-808.
 - (a) If the Horizontal Stabilizer does not move up or down when you use the Right Hydraulic System, or it moves too slowly, then there is a mechanical problem with the Right Channel of the Stabilizer Trim System (STCM, Hydraulic Motor, or Hydraulic Brake). You must repair the mechanical problem(s) before you do the troubleshooting of the Electrical System below.
 - 1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there could be a problem related to the Electrical System. Do this Ground Test on the MAT: 27 Primary Flight Controls, SYSTEM TEST, Stabilizer System (How to Do a Ground Test, AMM TASK 45-10-00-740-819).
 - a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent problem.

G. Fault Isolation Procedure

- (1) Do this check to make sure that the Right Hydraulic System STCM Shutoff Valve, V6 is open.
 - (a) Find the STCM Shutoff Valve, V6 (AMM TASK 27-41-10-000-801).
 - (b) Make sure that the lever on the valve is in the OPEN position.
 - 1) If the lever is not in the OPEN position, then do these steps:
 - a) Disconnect connector DM27213A from the STCM Shutoff Valve (WDM 27-41-13).
 - b) Do a check for 28 VDC between pins 3 and 1 of connector DM27213A.

EFFECTIVITY
ARO ALL

27-41 TASK 802

D633W103-ARO

Page 205
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- <1> If you find 28V DC, replace the Right Stab Auto Shutdown Relay, K27008.
- <a> Connect connector DM27213A to the STCM Shutoff Valve.
- Do the Repair Confirmation at the end of this task.
- <2> If you do not find 28V DC, continue.
- c) Do a check for 28 VDC between pins 2 and 1 of connector DM27213A.
- <1> If you find 28V DC, replace the Right Stabilizer Trim Control Module (STCM) Shutoff Valve, V6. These are the tasks:
- STCM Shutoff Valve Removal, AMM TASK 27-41-10-000-801
 - STCM Shutoff Valve Installation, AMM TASK 27-41-10-400-801
- <a> Do the Repair Confirmation at the end of this task.
- <2> If you do not find 28V DC between pins 2 and 1 of connector DM27213A, replace the Right Stab Auto Shutdown Relay, K27008.
- <a> Connect connector DM27213A to the STCM Shutoff Valve.
- Do the Repair Confirmation at the end of this task.
- I. If the problem continues, examine and repair the wiring between the STCM and the Right Stab Auto Shutdown Relay, K27008 as follows (WDM 27-41-13):
- NOTE: The remaining power wiring (from the circuit breaker to the cutout switch and from the switch to the relay) is monitored by the ACE. If this wiring (including the switch and the circuit breaker) were bad, there would be a different maintenance message.

R STCM
DM27213A
pin 2

R STAB AUTO
SHTDN RLY
DK27008
pin A3

- 2) If the lever on the STCM Shutoff Valve, V6, is in the OPEN position, then continue.
- (2) Disconnect connector DM27213C from the Right STCM, M27213 (WDM 27-41-13).
- (3) Do a check for 28 VDC between pins 2 and 1 of connector DM27213C.
- (a) If you find 28V DC, replace the Right STCM Trim Down Control Valve, V1. These are the tasks:
- STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
- 1) Do the Repair Confirmation at the end of this task.
- (b) If you do not find 28V DC, examine the wiring between the STCM and the Power Supply Assembly-Right (PSA-R), M24201 as follows (WDM 27-41-13):

R STCM
DM27213C
pin 2

PSA-R
DM24201AD
pin 17

EFFECTIVITY
ARO ALL

27-41 TASK 802

D633W103-ARO

Page 206
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If you find problems, do these steps:
 - a) Repair the wiring.
 - b) Connect connector DM27213C to the Right STCM, M27213.
 - c) Do the Repair Confirmation at the end of this task.
- (4) Do a check for 28V DC between pins 2 and 1 of connector DM27213B.
 - (a) If you find 28V DC, replace the Right STCM Trim Down Arm Valve, V3. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find 28V DC between pins 2 and 1 of connector DM27213B, examine the wiring between the STCM and the Power Management Panel-Left, P110 (STAB TRIM ARM circuit breaker, C27612) as follows (WDM 27-41-14).

R STCM	PWR MGMT
DM27213B	PNL
D11013P	
pin 2	pin 11

- 1) If you find problems, do these steps:
 - a) Repair the wiring.
 - b) Connect connector DM27213B to the Right STCM, M27213.
 - c) Do the Repair Confirmation at the end of this task.
- (5) Do this check to make sure that the Right Hydraulic System STCM Shutoff Valve, V6 is open.
 - (a) Find the STCM Shutoff Valve, V6 (AMM TASK 27-41-10-000-801).
 - (b) Make sure that the lever on the valve is in the OPEN position.
 - 1) If the lever is not in the OPEN position, then do these steps:
 - a) Disconnect connector DM27213A from the STCM Shutoff Valve (WDM 27-41-13).
 - b) Do a check for 28 VDC between pins 3 and 1 of connector DM27213A.
 - <1> If you find 28V DC, replace the Right Stab Auto Shutdown Relay, K27008.
 - <a> Connect connector DM27213A to the STCM Shutoff Valve.
 - Do the Repair Confirmation at the end of this task.
 - <2> If you do not find 28V DC, continue.
 - c) Do a check for 28 VDC between pins 2 and 1 of connector DM27213A.
 - <1> If you find 28V DC, replace the Right Stabilizer Trim Control Module (STCM) Shutoff Valve, V6. These are the tasks:
 - STCM Shutoff Valve Removal, AMM TASK 27-41-10-000-801
 - STCM Shutoff Valve Installation, AMM TASK 27-41-10-400-801
 - <a> Do the Repair Confirmation at the end of this task.
 - <2> If you do not find 28V DC between pins 2 and 1 of connector DM27213A, replace the Right Stab Auto Shutdown Relay, K27008.

EFFECTIVITY
ARO ALL

27-41 TASK 802

D633W103-ARO

Page 207
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- <a> Connect connector DM27213A to the STCM Shutoff Valve.
- Do the Repair Confirmation at the end of this task.
 - I. If the problem continues, examine and repair the wiring between the STCM and the Right Stab Auto Shutdown Relay, K27008 as follows (WDM 27-41-13):

NOTE: The remaining power wiring (from the circuit breaker to the cutout switch and from the switch to the relay) is monitored by the ACE. If this wiring (including the switch and the circuit breaker) were bad, there would be a different maintenance message.

**R STCM
DM27213A**
pin 2

**R STAB AUTO
SHTDN RLY
DK27008**
pin A3

- 2) If the lever on the STCM Shutoff Valve, V6, is in the OPEN position, then continue.
- (6) Disconnect connector DM27213C from the Right STCM, M27213 (WDM 27-41-13).
- (7) Do a check for 28 VDC between pins 2 and 1 of connector DM27213C.
 - (a) If you find 28V DC, replace the Right STCM Trim Up Control Valve, V2. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find 28V DC, examine the wiring between the STCM and the Power Supply Assembly-Right (PSA-R), M24201 as follows (WDM 27-41-13):

**R STCM
DM27213C**
pin 2

**PSA-R
DM24201AD**
pin 17

- 1) If you find problems, do these steps:
 - a) Repair the wiring.
 - b) Connect connector DM27213C to the Right STCM, M27213.
 - c) Do the Repair Confirmation at the end of this task.
- (8) Disconnect connector DM27213B from the Right STCM, M27213 (WDM 27-41-14).
- (9) Do a check for 28V DC between pins 2 and 1 of connector DM27213B.
 - (a) If you find 28V DC, replace the Right STCM Trim Up Arm Valve, V4. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find 28V DC between pins 2 and 1 of connector DM27213B, examine the wiring between the STCM and the Power Management Panel-Left, P110 (STAB TRIM ARM circuit breaker, C27612) as follows (WDM 27-41-14).

EFFECTIVITY
ARO ALL

27-41 TASK 802

D633W103-ARO

Page 208
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

R STCM
DM27213B

pin 2 pin 11

PWR MGMT
PNL
D11013P

- 1) If you find problems, do these steps:
 - a) Repair the wiring.
 - b) Connect connector DM27213B to the Right STCM, M27213.
 - c) Do the Repair Confirmation at the end of this task.
- (10) Exchange the ACE for M27221. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
 - (a) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 1) Do the Repair Confirmation at the end of this task.
- (11) Exchange the ACE for M27122. This is the task: This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
 - (a) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 1) Do the Repair Confirmation at the end of this task.
- (12) Replace the Right STCM, M27213. These are the tasks:
 - Stabilizer Trim Control Modules (STCM) Removal, AMM TASK 27-41-07-000-801
 - Stabilizer Trim Control Modules (STCM) Installation, AMM TASK 27-41-07-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (13) Replace the Right SPM, M27031. These are the tasks:
 - Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801
 - Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
 - (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

803. Right Stabilizer Uncommanded Trim Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10005.

EFFECTIVITY
ARO ALL

27-41 TASKS 802-803

D633W103-ARO

Page 209
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the Extended Maintenance, Present Leg Faults display on the MAT for maintenance messages 27-10018, 27-10020, 27-10022, and 27-10024.
- (2) If maintenance message 27-10018 shows in Present Leg Faults, then do these steps:
 - (a) Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - (b) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (c) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (d) Replace the trim-up control solenoid valve, V002, on the right stabilizer trim control module, M27213. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
- (3) If maintenance message 27-10020 shows in Present Leg Faults, then do these steps:
 - (a) Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - (b) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (c) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (d) Exchange the ACE for M27213. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (e) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (f) Replace the trim-down control solenoid valve, V001, on the right stabilizer trim control module, M27213p. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801

EFFECTIVITY
ARO ALL

27-41 TASK 803

D633W103-ARO

Page 210
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) If maintenance message 27-10022 shows in Present Leg Faults, then do these steps:
- Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - Exchange the ACE for M27213. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - Replace the trim-up arm solenoid valve, V004, on the right stabilizer trim control module, M27213. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
- (5) If maintenance message 27-10024 shows in Present Leg Faults, then do these steps:
- Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - Exchange the ACE for M27213. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - Replace the trim-down arm solenoid valve, V003, on the right stabilizer trim control module, M27213. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
- (6) If two of the specified maintenance messages showed in Present Leg Faults and you did the steps given above for each one, you corrected the fault.
- (7) If none of the specified maintenance messages showed in Present Leg Faults, then do these steps:
- Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step. These are the tasks:

EFFECTIVITY
ARO ALL

27-41 TASK 803

D633W103-ARO

Page 211
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (c) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (d) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (e) Exchange the ACE for M27213. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (f) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (g) Replace these solenoid valves on the right stabilizer trim control module, M27213 . These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
 - 1) Trim-up control, V002
 - 2) Trim-down control, V001
 - 3) Trim-up arm, V004
 - 4) Trim-down arm, V003.
- (h) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- (8) Exchange the ACE for M27213. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (9) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (10) Replace the right stabilizer trim control module, M27213. These are the tasks:
 - Stabilizer Trim Control Modules (STCM) Removal, AMM TASK 27-41-07-000-801
 - Stabilizer Trim Control Modules (STCM) Installation, AMM TASK 27-41-07-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

804. Right Stabilizer Auto Shutdown Relay Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10008.

EFFECTIVITY
ARO ALL

27-41 TASKS 803-804

D633W103-ARO

Page 212
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: This fault will occur if the "R" stabilizer cutout switch, on the control stand, is in the CUTOUT position.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the stabilizer cutout switch, S27054:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Remove the safety tag and close this circuit breaker on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:
 - 1) B2, STAB TRIM
- (d) Set STAB R CUTOUT switch on the pilots' control stand to the CUTOUT position.
- (e) Do a check for 28 VDC from pin A4 of connector DM27221AC to structure ground (WDM 27-41-13).
- (f) If there is 28 VDC at pin A4 of DM27221AC, then do these steps:
 - 1) Replace the stabilizer cutout switch R, S27054. These are the tasks:
 - Stabilizer Cutout Switches Removal, AMM TASK 27-41-04-000-801
 - Stabilizer Cutout Switches Installation, AMM TASK 27-41-04-400-801
 - 2) Install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR

EFFECTIVITY
ARO ALL

27-41 TASK 804

D633W103-ARO

Page 213
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If there is not 28 VDC at pin A4 of DM27221AC, then continue.
 - 1) Set STAB R CUTOOUT switch on the pilots' control stand to the NORM position.
- (2) Do this check of the wiring for the auto shutoff output circuit:
 - (a) Do a check for 28 VDC from pin A4 of connector DM27221AC to structure ground (WDM 27-41-13).
 - (b) If there is 28 VDC at pin A4 of DM27221AC, then do these steps:
 - 1) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 2) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 3) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If there is not 28 VDC at pin A4 of DM27221AC, then continue.
- (3) Do a check for 28 VDC from terminal VA01 of terminal block TB4152 to structure ground (WDM 27-41-13).
- (4) If there is 28 VDC at terminal VA01 of terminal block TB4152, then do these steps:
 - (a) Open this circuit breaker on the PSA-R, M24201:
 - 1) B2, STAB TRIM
 - (b) Remove the right stab auto shutdown relay, K27008 (WDM 27-41-13).

NOTE: This relay is on the top of the AEO160 disconnect panel, which is above the forward access door, 112AL.

EFFECTIVITY
ARO ALL

27-41 TASK 804

D633W103-ARO

Page 214
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Do a wiring check between these contacts of connector DK27008 and terminal block TB4152 (WDM 27-41-13):

DK27008	TB4152
pin X1	term VA01

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the right stab auto shutdown relay, K27008.
- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Do a wiring check between these contacts of connector DK27008 and connector DM27221AC at the E5-2 shelf (WDM 27-41-13):

DK27008	DM27221AC
pin X2	pin A4

- (g) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the right stab auto shutdown relay, K27008.
- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU

EFFECTIVITY
ARO ALL

27-41 TASK 804

D633W103-ARO

Page 215
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (h) If you do not find a problem with the wiring, then continue.
- (i) Install a new right stab auto shutdown relay, K27008 (WDM 27-41-13).
- (j) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (k) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (l) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) If there is not 28 VDC at terminal VA01 of block TB4152, then continue.
- (6) Do a check for 28 VDC from terminal VB03 of terminal block TB4152 to structure ground (WDM 27-41-13).
- (7) If there is 28 VDC at terminal VB03 of block TB4152, then do these steps:
 - (a) Open this circuit breaker and attach a safety tag on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:
 - 1) B2, STAB TRIM
 - (b) Remove the stabilizer trim cutoff panel, P10-1, from the P10 pilot's control stand (it is necessary to disconnect connector D114J from the P10-1 panel).
 - (c) Do a continuity check between pins 2 and 3 of connector D114P (WDM 27-41-13).
 - (d) If there is not continuity between pins 2 and 3 of D114P, then do these steps:
 - 1) Replace the right stab trim cutout switch, S27054.

EFFECTIVITY
ARO ALL

27-41 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 216
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Stabilizer Cutout Switches Removal, AMM TASK 27-41-04-000-801,
Stabilizer Cutout Switches Installation, AMM TASK 27-41-04-400-801.

- 2) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 3) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If there is continuity between pins 2 and 3 of D114P, then continue.
- (f) Do a wiring check between these contacts of connector D114J at the P10-1 module and terminal block TB4152 in the forward equipment center (WDM 27-41-13):

<u>D114J</u>	<u>TB4152</u>
pin 3	term VA01
pin 2	term VB03

- (g) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the stabilizer trim cutoff panel, P10-1.
 - 3) Re-install the ACE-R, M27221, on the E5-1 shelf.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-41 TASK 804

D633W103-ARO

Page 217
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (8) If there is not 28 VDC at terminal VB03 of block TB4152, then continue.
- (9) Do a check for 28 VDC from terminal VB09 of terminal block TB5201 to structure ground (WDM 27-41-13).
- (10) If there is 28 VDC at terminal VB09 of block TB5201, then do these steps:
 - (a) Do a wiring check between these contacts of terminal block TB5201 at the E5-2 shelf and terminal block TB4152 in the forward equipment center (WDM 27-41-13):

TB5201	TB4152
term VB09	term VB03

- (b) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (11) If there is not 28 VDC at terminal VB09 of block TB5201, then do these steps:
 - (a) Remove PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these contacts of connector DM24201AD at the E5-1 shelf and terminal block TB5201 at the E5-2 shelf (WDM 27-41-13):

DM24201AD	TB5201
pin 17	term VB09

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-41 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 218
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (12) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

805. Right Stabilizer Auto Shutdown Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10010.

B. Possible Causes

- (1) Stabilizer Trim Control Module (STCM) Shutoff Valve, V006
- (2) Right Stabilizer Auto Shutdown Relay, K27008
- (3) Wiring

C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Do this check of the stabilizer's response to the control switches:
 - (a) Pressurize the right hydraulic system.
 - (b) Make sure that the left and center hydraulic systems are not pressurized.
 - (c) Set the PRIMARY FLIGHT COMPUTERS switch on the P5 overhead panel to DISC.
 - (d) Set the STAB R switch on the P10 pilots' control stand to CUTOUT.
 - (e) Look for movement of the stabilizer during the subsequent two steps.
 - 1) Push and hold the STAB TRIM switches on either control wheel to the NOSE UP position for 5 seconds.
 - 2) Push and hold the STAB TRIM switches on either control wheel to the NOSE DN position for 5 seconds.
 - (f) Release the pressure in the right hydraulic system.

EFFECTIVITY
ARO ALL

27-41 TASKS 804-805

D633W103-ARO

Page 219
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (g) Set the STAB R switch on the P10 pilots' control stand to NORM.
- (2) If the stabilizer did not move up or down when you operated the switches, then do these steps:
- (a) Remove the right stab auto shutdown relay, K27008.
- (b) Do a check for 28V DC from pins X1, A2, and B2 of connector DK27008 to structure ground (WDM 27-41-13):
- (c) If there is not 28V DC at pins X1, A2, or B2 of DK27008, then do these steps:
- 1) Repair the applicable wiring between these pins of connector DK27008 at the right stab auto shutdown relay, K27008, and terminal block TB4152 in the EE bay (STA 153, WL 205, and BL R009) (WDM 27-41-13):

DK27008	TB4152
pin A2	term VA01
pin X1	term VA01
pin B2	term VB03

- 2) Disconnect connector DM27221AC and do a wiring check between the following pins:

DK27008	TB4152
pin B1	term VA03

DK27008	DM27221AC
pin X2	pin A4

- 3) Repair wires as necessary.
- 4) Reconnect connector DM27221AC.
- 5) Re-install the right stab auto shutdown relay, K27008.
- 6) Do the Repair Confirmation at the end of the task.
- (d) If there is 28V DC at pins X1, A2, and B2, then continue.
- (e) Install a new right stab auto shutdown relay, K27008.
- (f) Do the Repair Confirmation at the end of the task.
- (3) If the stabilizer moved up or down when you operated the switches, then do these steps:
- (a) Disconnect connector DM27213A from the right stabilizer trim control module (STCM), M27213.
- (b) Do a wiring check between these contacts of connector DM27313A at the right STCM and terminal block TB4152 in the EE bay (STA 153, WL 205, and BL R009) (WDM 27-41-13):

DM27213A	TB4152
pin 3	term VA03

- (c) Do a continuity check from pin 1 of connector DM27213A to structure ground (WDM 27-41-13).
- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-connect connector DM27213A.

EFFECTIVITY
ARO ALL

27-41 TASK 805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 220
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Do the Repair Confirmation at the end of the task.
- (e) If you do not find a problem with the wiring, then do these steps:
 - 1) Do these tasks to replace the shutoff valve, V006, on the right STCM, M27213:
 - a) STCM Shutoff Valve Removal, AMM TASK 27-41-10-000-801
 - b) STCM Shutoff Valve Installation, AMM TASK 27-41-10-400-801
 - 2) Re-connect connector DM27213A.
 - 3) Do the Repair Confirmation at the end of the task.

E. Repair Confirmation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then continue the Fault Isolation Procedure at the subsequent step.
 - (b) If the maintenance message does not show on the ground test display, you corrected the problem.

————— END OF TASK —————

806. Stabilizer Trim Control Module (Center) Trim Up Arm Solenoid Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10017.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the solenoid valve, V4, on the center stabilizer trim control module (STCM), M27313.
These are the tasks:
STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.
NOTE: This solenoid valve controls the trim up function.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check for electrical power to the solenoid valve:

EFFECTIVITY
ARO ALL

27-41 TASKS 805-806

D633W103-ARO

Page 221
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf and install safety tags:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Remove the safety tag and close this circuit breaker on the PSA-L, M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-L	STAB TRIM

- (d) Do a check for 28 VDC between pin A2 (+) of connector DM27121AC on the ACE-L1 and pin B8 (-) of connector DM27121AB on the ACE-L1 (WDM 27-41-12).
- (e) If there is 28 VDC between pin A2 of DM27121AC and pin B8 of DM27121AB, then do these steps:

- 1) Open this circuit breaker on PSA-L, M24101, on the E1-6 shelf and install safety tag:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-L	STAB TRIM

- 2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 3) Remove the safety tag and close this circuit breaker on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-L	STAB TRIM

- 4) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU

EFFECTIVITY
ARO ALL

27-41 TASK 806

D633W103-ARO

Page 222
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is not 28 VDC between pin A2 of DM27121AC and pin B8 of DM27121AB, then continue.
- (3) Do this check of the wiring to the solenoid:
- (a) Remove PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (b) Measure the resistance between pin 17 of connector DM24101AD at the E1-6 and pin A2 of connector DM27121AC at the E1-5 (WDM 27-41-12).
- NOTE:** The solenoid valve has a resistance of approximately 70 ohms.
- (c) If the resistance between pin 17 of DM24101AD and pin A2 of DM27121AC is not 50-100 ohms, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-41 TASK 806

D633W103-ARO

Page 223
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the resistance between pin 17 of DM24101AD and pin A2 of DM27121AC is 50-100 ohms, then continue.
- (4) Do a check for continuity from pin A2 of connector DM27121AC to structure ground (WDM 27-41-12).
- (a) If there is continuity from pin A2 of DM27121AC to ground, then do these steps:
- 1) Repair the wiring (WDM 27-41-12).
 - 2) Re-install PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (b) If there is not continuity from pin A2 of DM27121AC to ground, then continue:
- (5) Do a wiring check between these contacts of connector DM27121AB (for ACE-L1) and connector DM24101AD (for PSA-L) (WDM 27-41-12):

DM27121AB	DM24101AD
pin B8	pin 18

- (a) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR

EFFECTIVITY
ARO ALL

27-41 TASK 806

D633W103-ARO

Page 224
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If you did not find a problem with the wiring, then continue.
 - c) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (6) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

————— END OF TASK —————

807. Stabilizer Position Module (Left) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11000.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

NOTE: This ground test unlatches the fault, but does not do a test of the system. This test will show FAILED, ignore this failure.

- (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:

EFFECTIVITY
ARO ALL

27-41 TASKS 806-807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 225
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (3) Replace the left stabilizer position module, M27015. These are the tasks:
- Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801
 - Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801
- (a) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- (4) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 1) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-41 TASK 807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 226
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

808. Stabilizer Position Modules Have Multiple Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11006.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: This maintenance message only occurs if there is more than one problem with the stabilizer position system. When you correct one problem, this message can go away and a different message (27-11003, 27-11004, or 27-11005) can show. This is good because it shows you only have one problem remaining. When this occurs, do the Fault Isolation Procedure for the new maintenance message.

- (1) Adjust the left, right, and center stabilizer position modules. To adjust the stabilizer position modules, do this task: Horizontal Stabilizer Position Module and Travel Limiter Adjustment, AMM TASK 27-48-00-820-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,

Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left stabilizer position module, M27015.

These are the tasks:

Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801,

Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

EFFECTIVITY
ARO ALL

27-41 TASK 808

D633W103-ARO

Page 227
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (6) Replace the ACE recommended by the previous step.
- These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) Replace the center stabilizer position module recommended by the previous step.
- These are the tasks:
- Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801,
Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (8) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (9) Replace the ACE recommended by the previous step.
- These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (10) Replace the right stabilizer position module, M27031.
- These are the tasks:
- Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801,
Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

809. Pitch Trim Switches (Left) Nose Up Switches Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12400.

B. Initial Evaluation

- (1) Push the two pitch trim switches on the captain's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.

NOTE: If you hold the switches down for less than five seconds, the maintenance message will stay latched.

- (a) Release the pitch trim switches.
- (2) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

NOTE: This fault can occur if a person moves only one of the two pitch trim switches on the captain's control wheel.

- (3) If the MAT shows LATCHED or ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Operate the two pitch trim switches on the captain's control wheel and make sure they both return to the center position.
 - (a) If the switches do not return to the center position, then do these steps:
 - 1) Replace the pitch trim switches, S27039.
These are the tasks:
Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,
Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.
 - 2) Push the two pitch trim switches on the captain's control wheel up. Hold them up for a minimum of five seconds.
 - 3) Release the pitch trim switches.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - (b) If the switches do return to the center position, then continue.
- (2) Do this check of the pitch trim switch circuits.
 - (a) Look at page 3 of the maintenance pages for the flight controls on the MFD.
 - 1) Make sure the CAPT PITCH TRIM ARM indication for ACE-L1 shows NO. If the indication does not show NO, then the pitch trim arm circuit has a problem.
 - 2) Make sure the CAPT PITCH TRIM CTRL indication for ACE-C shows NO. If the indication does not show NO, then the pitch trim control circuit has a problem.
 - (b) Push the two pitch trim switches on the captain's control wheel down (airplane nose up).
 - (c) Look at page 3 of the maintenance pages for the flight controls on the MFD.
 - 1) Make sure the CAPT PITCH TRIM ARM indication for ACE L1 shows UP. If the indication does not show UP, then the pitch trim arm circuit has a problem.

EFFECTIVITY
ARO ALL

27-41 TASKS 808-809

D633W103-ARO

Page 229
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Make sure the CAPT PITCH TRIM CTRL indication for ACE C shows UP. If the indication does not show UP, then the pitch trim control circuit has a problem.
- (d) Release the pitch trim switches.
- (3) If the pitch trim arm circuit has a problem, then do these steps:
 - (a) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (b) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

 - 1) Push the two pitch trim switches on the captain's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
 - (c) Replace the pitch trim switches, S27039.

These are the tasks:

Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,
Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.

 - 1) Push the two pitch trim switches on the captain's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
 - (d) Repair the wiring between the pitch trim switch and these pins of connector DM27121AC (the connector for the ACE-L1) (WDM 27-41-12):

NOTE: The colors specified in this table are for the wires that connect to the pitch trim switch wires at the center of the control wheel.

NOTE: Disconnect only one wire at a time so you cannot connect the wrong wires together.

Switch Wire	DM27121AC
red	pin K15
blue	pin J14
yellow	pin J15

- 1) Push the two pitch trim switches on the captain's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.
- 2) Release the pitch trim switches.
- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

EFFECTIVITY
ARO ALL

27-41 TASK 809

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 230
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) If the pitch trim control circuit has a problem, then do these steps:
- (a) Replace the ACE recommended by the previous step.
- These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 1) Push the two pitch trim switches on the captain's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
- (b) Replace the pitch trim switches, S27039.

These are the tasks:

Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,
Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.

- 1) Push the two pitch trim switches on the captain's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
- (c) Repair the wiring between the pitch trim switch and these pins of connector DM27321AC (the connector for the ACE-C) (WDM 27-41-11):

NOTE: The colors specified in this table are for the wires that connect to the pitch trim switch wires at the center of the control wheel.

NOTE: Disconnect only one wire at a time so you cannot connect the wrong wires together.

Switch Wire	DM27321AC
green	pin K15
black	pin J14
violet	pin J15

- 1) Push the two pitch trim switches on the captain's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.
- 2) Release the pitch trim switches.
- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-41 TASK 809

D633W103-ARO

Page 231
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

810. Stabilizer Position Module (Center) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11001.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

NOTE: This ground test unlatches the fault, but does not do a test of the system. This test will show FAILED, ignore this failure.

- (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27030 from the center stabilizer position module.
- (d) Do a wiring check between these contacts of connector DM27321AC (for ACE-C) and connector DM27030 (at the stabilizer position module) (WDM 27-41-11):

DM27321AC		DM27030	
pin B1	.....	pin 3	
pin B2	.....	pin 2	
pin C1	.....	pin 4	
pin C2	.....	pin 1	
pin C3	.....	pin 5	

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27030 to the stabilizer position module.

EFFECTIVITY
ARO ALL

27-41 TASK 810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 232
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
- (2) Replace the center stabilizer position module, M27030.

These are the tasks:

Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801,

Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801.

- (a) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (b) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
 - 2) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27

EFFECTIVITY
ARO ALL

27-41 TASK 810

D633W103-ARO

Page 233
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.

————— END OF TASK —————

811. Stabilizer Position Module (Right) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11002.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

NOTE: This ground test unlatches the fault, but does not do a test of the system. This test will show FAILED, ignore this failure.

- (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27031 from the right stabilizer position module.
- (d) Do a wiring check between these contacts of connector DM27221AC (for ACE-R) and connector DM27031 (at the stabilizer position module) (WDM 27-41-13):

EFFECTIVITY
ARO ALL

27-41 TASKS 810-811

D633W103-ARO

Page 234
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27221AC

pin B1	.....	pin 3
pin B2	.....	pin 2
pin C1	.....	pin 4
pin C2	.....	pin 1
pin C3	.....	pin 5

DM27031

(e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27031 to the stabilizer position module.
- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.

(f) If you do not find a problem with the wiring, then continue.

(2) Replace the right stabilizer position module, M27031. These are the tasks:

- Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801
 - Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801
- (a) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (b) Make sure that these circuit breakers are closed on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

EFFECTIVITY
ARO ALL

27-41 TASK 811

D633W103-ARO

Page 235
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
- 2) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.

————— END OF TASK —————

812. STCM-R Hydraulic Brake Pressure Switch Fault - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10014.

B. Description

- (1) The Right Stabilizer Trim Control Module Hydraulic Brake Pressure Switch is inoperative.

C. Possible Causes

- (1) Right STCM Brake Pressure Switch, S1
- (2) Right Stabilizer Trim Control Module, M27213
- (3) Right ACE, M27221
- (4) Wiring
- (5) Right Stabilizer Hydraulic Motor

D. Related Data

- (1) WDM 27-41-13

E. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this task for the related Stabilizer Hydraulic Motor: Stabilizer Mechanical Trim Rate Test (Right Hydraulic System), AMM TASK 27-41-00-700-808.

NOTE: Poor performing Stabilizer Hydraulic Motors have resulted in setting Brake Pressure Switch faults. This test verifies proper operation of the related Stabilizer Hydraulic Motor.

- (3) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the test stopped before it was completed (the test would not complete and must be aborted), then, do this task: Horizontal Stabilizer Position Module and Travel Limiter Adjustment, AMM TASK 27-48-00-820-801.

EFFECTIVITY
ARO ALL

27-41 TASKS 811-812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 236
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Do the Stabilizer System Test again.
- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent problem.

F. Fault Isolation Procedure

- (1) Replace the Brake Pressure Switch, S1, on the Right Stabilizer Trim Control Module (STCM-R), M27213. These are the tasks:
 - STCM Brake Pressure Switch Removal, AMM TASK 27-41-09-000-801
 - STCM Brake Pressure Switch Installation, AMM TASK 27-41-09-400-801
- (a) Do the Repair Confirmation procedure at the end of this task.
- (2) Do these steps to make sure that the Brake Pressure Switch operates correctly when operated from the Pitch Trim Switches or the Alternate Pitch Trim Levers using the Right Hydraulic System.
 - (a) Do this task: Supply Electrical Power, AMM TASK 24-22-00-860-805.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (b) For the Right Hydraulic System only, do one of the following tasks:

NOTE: The center hydraulic power must be off.

NOTE: The right ACMP does not have enough flow.

 - 1) (Left or Right Hydraulic System Pressurization with an Engine-Driven Pump (EDP), AMM TASK 29-11-00-860-804)
 - 2) (Main Hydraulic System Pressurization with a Portable Hydraulic Cart, AMM TASK 29-11-00-860-802).
- (c) Monitor page 3 of the maintenance pages for the Flight Controls on the Multi-Functional Display (MFD) (AMM TASK 31-61-00-800-804).
 - 1) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	NO

- (d) Push the two Pitch Trim Switches on the Captain's Control Wheel up and hold it for approximately 5 seconds.
 - 1) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

EFFECTIVITY
ARO ALL

27-41 TASK 812

D633W103-ARO

Page 237
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	YES

(e) Release the Pitch Trim Switches.

1) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	NO

(f) Push the two Pitch Trim Switches on the Captain's Control Wheel down and hold it for approximately 5 seconds.

1) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	YES

(g) Release the Pitch Trim Switches.

1) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	NO

(h) Do these steps with the two ALTN PITCH TRIM levers together.

1) Pull the levers fully aft and hold them for approximately 5 seconds.

a) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	YES

2) Release the ALTN PITCH TRIM levers.

a) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	NO

EFFECTIVITY
ARO ALL

27-41 TASK 812

D633W103-ARO

Page 238
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Push the levers fully forward and hold them for approximately 5 seconds.
- a) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	YES

- 4) Release the ALTN PITCH TRIM levers.
- a) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	NO

- (i) If any of the indications on maintenance page 3 does not show as indicated above, then replace the Right Stabilizer Trim Control Module, M27213. These are the tasks:
- Stabilizer Trim Control Modules (STCM) Removal, AMM TASK 27-41-07-000-801
 - Stabilizer Trim Control Modules (STCM) Installation, AMM TASK 27-41-07-400-801.
- 1) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
- (j) If all indications on maintenance page 3 show as indicated above, then continue.
- (3) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do the Repair Confirmation procedure at the end of this task.
- (5) Do this check of the wiring:
- (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	7	CBA7-R	ELEV PCU
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27213D from the STCM-R, M27213.
- (d) Do a wiring check between these pins of connector DM27213E at the STCM-R, M27213, and connector DM27221AC at the E5-2 shelf (WDM 27-41-13):

EFFECTIVITY
ARO ALL

27-41 TASK 812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 239
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27213E

pin 1 pin B6
pin 2 pin A6

DM27221AC

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27213E.
 - 3) Re-install the ACE-R, M27221. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	7	CBA7-R	ELEV PCU
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do the Repair Confirmation procedure at the end of this task.
- (f) If you do not find a problem with the wiring, then replace the Right Stabilizer Hydraulic Motor. These are the tasks:
- Stabilizer Hydraulic Motor Removal, AMM TASK 27-41-11-000-801
 - Stabilizer Hydraulic Motor Installation, AMM TASK 27-41-11-400-801
- 1) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
 - (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

813. STCM-R Trim Rate Solenoid Valve Command Problems from ACE-L2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10016.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

NOTE: This ground test unlatches the fault, but does not do a test of the system. The test will show FAILED, ignore the failure.

EFFECTIVITY
ARO ALL

27-41 TASKS 812-813

D633W103-ARO

Page 240
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the solenoid valve, V5, on the right stabilizer trim control module (STCM-R), M27213.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,

STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.

NOTE: This solenoid valve controls the trim rate function.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (3) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,

Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Do this check of the power wiring:
 - (a) Disconnect connector DM27213D from the STCM-R.
 - (b) Do a check for 28V DC from pin 2 of connector DM27213D to structure ground (WDM 27-41-14).
 - (c) If there is not 28V DC at pin 2 of connector DM27213D, then do these steps:
 - 1) Re-connect connector DM27213D.
 - 2) Repair the wiring between these pins of connector DM27213D at the STCM-R, M23213, and the load terminal of circuit breaker C27612 (WDM 27-41-14):

DM27213D

C27612

pin 2 term 2

- 3) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
- (d) If there is 28 VDC at pin 2 of connector DM27213D, then continue.

EFFECTIVITY
ARO ALL

27-41 TASK 813

D633W103-ARO

Page 241
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(5) Do this check of the command wiring:

(a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

(b) Remove the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

(c) Do a wiring check between these pins of connector DM27213D at the STCM-R, M27213, and connector DM27122AC at the E1-1 shelf (WDM 27-41-14):

DMM27213D

pin 1

DM27122AC

pin A4

(d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27213D.
- 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

6) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.

(e) If you do not find a problem with the wiring, then continue.

(f) Reconnect connector DM27213D.

(6) Do this check of the ground wiring:

(a) Do a continuity check between pin B8 of connector DM27122AB at the E1-1 shelf and structure ground (WDM 27-41-14).

(b) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-41 TASK 813

D633W103-ARO

Page 242
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 3) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.

————— END OF TASK —————

814. STCM-R Trim Down Solenoid Valve Command Problems from ACE-L2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10022.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the solenoid valve, V3, on the right stabilizer trim control module (STCM-R), M27213.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,

STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.

NOTE: This solenoid valve arms the trim down function.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step.

EFFECTIVITY
ARO ALL

27-41 TASKS 813-814

D633W103-ARO

Page 243
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,

Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the power wiring:
 - (a) Disconnect connector DM27213B from the STCM-R.
 - (b) Do a check for 28V DC from pin 2 of connector DM27213D to structure ground (WDM 27-41-14).
 - (c) If there is not 28V DC at pin 2 of connector DM27213D, then do these steps:
 - 1) Re-connect connector DM27213B.
 - 2) Open the P110 left power management panel.
 - 3) Do a check for 28V DC at the load terminal of circuit breaker C27612.
 - 4) If there is not 28V DC at the circuit breaker, then do these steps (WDM 27-41-14):
 - a) Replace this circuit breaker:
- 5) If there is 28V DC at the circuit breaker, then do these steps:
 - a) Repair the wiring between these pins of connector DM27213D at the STCM-R, M23213, and the load terminal of circuit breaker C27612 (WDM 27-41-14):

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R

- b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- c) If the maintenance message does not show on the ground test display, you corrected the fault.

<u>DM27213D</u>	<u>C27613</u>
pin 2	term 2

- b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- c) If the maintenance message does not show on the ground test display, you corrected the fault.

- (d) If there is 28 VDC at pin 2 of connector DM27213B, then continue.

- (5) Do this check of the command wiring:

- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR

EFFECTIVITY
ARO ALL

27-41 TASK 814

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 244
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27213B at STCM-R, M27213 and connector DM27122AC at the E1-1 shelf (WDM 27-41-14):

DM27213D	DM27122AC
pin 1	pin A4

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27213B.
 - 3) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Reconnect connector DM27213B.
- (6) Do this check of the ground wiring:
- (a) Do a continuity check between pin B8 of connector DM27122AB at the E1-1 shelf and structure ground (WDM 27-41-14).
 - (b) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-41 TASK 814

D633W103-ARO

Page 245
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

815. STCM-R Trim Down Solenoid Valve Command Problems from ACE-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10024.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the solenoid valve, V1, on the right stabilizer trim control module (STCM-R), M27213.
- These are the tasks:
- STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.
- NOTE: This solenoid valve arms the trim down function.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step.
- These are the tasks:

EFFECTIVITY
ARO ALL

27-41 TASKS 814-815

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 246
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right stabilizer position module, M27031.

These are the tasks:

Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801,
Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
 - (5) Do this check of the power wiring:
 - (a) Disconnect connector DM27213C from the STCM-R, M27213.
 - (b) Do a check for 28 VDC from pin 2 of connector DM27213C at the STCM-R, M27213, to structure ground (WDM 27-41-13).
 - (c) If there is not 28V DC at pin 2 of connector DM27213C, then do these steps:
 - 1) Remove the right power supply assembly (PSA-R), M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27213C at the STCM-R, M27213C, and connector DM24201AD at the E5-1 shelf (WDM 27-41-13):

DM27213C	DM24201AD
pin 2	pin 17

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27213C.
 - c) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27213C.

EFFECTIVITY
ARO ALL

27-41 TASK 815

D633W103-ARO

Page 247
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If there is 28V DC at pin 2 of connector DM27213C, then continue.
- (6) Do this check of the wiring from the position module to the STCM-R:
 - (a) Disconnect connector DM27031 from the position module, M27031.
 - (b) Do a wiring check between these pins of connector DM27031 at the position module and connector DM27213C at the STCM-R (WDM 27-41-13):

DM27031	DM27213C
pin 6	pin 1

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27031.
 - 3) Re-connect connector DM27213C.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-connect connector DM27213C.
- (7) Do this check of the command wiring:
 - (a) Open these circuit breakers and attach safety tags on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27031 at the position module, M27031 (WDM 27-41-13):

DM27221AC	DM27031
pin B4	pin 7

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27031.

EFFECTIVITY
ARO ALL

27-41 TASK 815

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 248
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove safety tags and close these circuit breakers on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27031.
- (8) Do this check of the ground wiring:
 - (a) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27221AB at the E5-2 shelf and connector DM24201AD at the E5-1 shelf (WDM 27-41-13):

DM27221AB

DM24201AD

pin B8 pin 18

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Make sure that these circuit breakers are closed on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

EFFECTIVITY
ARO ALL

27-41 TASK 815

D633W103-ARO

Page 249
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (9) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

816. Pitch Trim Switches (Left) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12404.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure.
- (2) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Do this task: Pitch Trim Switch Test, AMM TASK 27-41-00-700-803.
 - (b) If there were problems when you did the steps of the test, then do the Fault Isolation Procedure below.
 - (c) If there were no problems when you did the steps of the test, then no maintenance action is necessary. The captain or first officer made an operational error of the airplane during the flight.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this task: Pitch Trim Switch Test, AMM TASK 27-41-00-700-803.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (c) If the MAT shows LATCHED for the maintenance message, then continue.
- (3) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this task: Pitch Trim Switch Test, AMM TASK 27-41-00-700-803.

EFFECTIVITY
ARO ALL

27-41 TASKS 815-816

D633W103-ARO

Page 250
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then continue.
- (5) Replace the pitch trim switches, S27039. These are the tasks:
 - Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801
 - Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801
- (a) Do this task: Pitch Trim Switch Test, AMM TASK 27-41-00-700-803.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (c) If the MAT shows LATCHED for the maintenance message, then continue.
- (6) Do this check of the wiring from the switches to the ACE-L1:
 - (a) Disconnect connector D2105J from the pitch trim switches, S27039.
 - (b) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (c) Remove the ACE-L1, M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector D2105J at the left control wheel and connector DM27121AC at the E1-5 shelf (WDM 27-41-12):

D2105J	DM27121AC
pin 1	pin K15
pin 3	pin J15

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector D2105J.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU

EFFECTIVITY
ARO ALL

27-41 TASK 816

D633W103-ARO

Page 251
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this task: Pitch Trim Switch Test, AMM TASK 27-41-00-700-803.
- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (f) If you do not find a problem with the wiring, then continue.
- (7) Do this check of wiring from the switches to the ACE-C:
 - (a) Re-connect connector D2105J.
 - (b) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (c) Remove the safety tags and close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (d) Disconnect connector D2106J from the pitch trim switches, S27039.
- (e) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (f) Remove the ACE-C, M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

EFFECTIVITY
ARO ALL

27-41 TASK 816

D633W103-ARO

Page 252
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (g) Do a wiring check between these pins of connector D2106J at the left control wheel and connector DM27321AC at the E2-5 shelf (WDM 27-41-11):

D2106J	DM27321AC
pin 1	pin K15
pin 3	pin J15

- (h) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the pitch trim switches, S27039. To install it, do this task: Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tag and close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this task: Pitch Trim Switch Test, AMM TASK 27-41-00-700-803.
- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

817. Stabilizer Trim Control Module (Right) Arm Solenoid Valve Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15014.

B. Initial Evaluation

- (1) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R

- (a) If the circuit breaker opens when you try to close it, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Open.
- (2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the maintenance message shows on the ground test display, then do this check:
 - 1) If the circuit breaker is open, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Open.
 - 2) If the circuit breaker stayed closed, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Closed.

EFFECTIVITY
ARO ALL

27-41 TASKS 816-817

D633W103-ARO

Page 253
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure - Circuit Breaker Open

- (1) Do this check of the power wiring:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Disconnect connector D11013P from the left power management panel (P110).
- (c) Disconnect connectors DM27213B and DM27213D from the right stabilizer trim control module (STCM-R), M27213.
- (d) Do a wiring check between these pins of connectors DM27213B and DM27213D at the STCM-R and connector D11013P at the P110 panel (WDM 27-41-14):

DM27213B	D11013P
pin 2	pin 11

DM27213D	D11013P
pin 2	pin 11

DM27213B	DM27213B
pin 8	pin 4

- (e) Do a wiring check between this pin of connector D11013J at the P110 panel and terminal 2 at this circuit breaker, C27612 (WDM 27-41-14):

C27612	D11013J
term 2	pin 11

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connectors DM27213B and DM27213D to the STCM-R.
 - 3) Re-connect connector D11013P to the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR

EFFECTIVITY
ARO ALL

27-41 TASK 817

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 254
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If you do not find a problem with the wiring, then continue.
- (2) Measure the resistance between pin 2 and pin 1 of connector DM27213B (the connector for the trim arm solenoid valves, V3 and V4) on the STCM-R, M27213 (WDM 27-41-14).
 - (a) If the resistance is not 50-100 ohms, then do these steps:
 - 1) Replace the trim down arm solenoid valve, V3, on the STCM-R, M27213.
These are the tasks:
STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Brake Pressure Switch Removal, AMM TASK 27-41-09-000-801.
 - 2) Re-connect connectors DM27213B and DM27213D to the STCM-R.
 - 3) Re-connect connector D11013P to the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (b) If the resistance is 50-100 ohms, then continue.
- (3) Measure the resistance between pin 5 and pin 8 of connector DM27213B (the connector for the trim arm solenoid valves, V3 and V4) on the STCM-R, M27213 (WDM 27-41-14).
 - (a) If the resistance is not 50-100 ohms, then do these steps:
 - 1) Replace the trim up arm solenoid valve, V4, on the STCM-R, M27213.

EFFECTIVITY
ARO ALL

27-41 TASK 817

D633W103-ARO

Page 255
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Brake Pressure Switch Removal, AMM TASK 27-41-09-000-801.

- 2) Re-connect connectors DM27213B and DM27213D to the STCM-R.
- 3) Re-connect connector D11013P to the P110 panel.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the resistance is 50-100 ohms, then continue.
- (4) Measure the resistance between pin 2 and pin 1 of connector DM27213D (the connector for the trim rate solenoid valve, V5) on the STCM-R, M27213 (WDM 27-41-14).
 - (a) If the resistance is not 50-100 ohms, then do these steps:
 - 1) Replace the trim rate solenoid valve, V3, on the STCM-R, M27213.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Brake Pressure Switch Removal, AMM TASK 27-41-09-000-801.

- 2) Re-connect connectors DM27213B and DM27213D to the STCM-R.
- 3) Re-connect connector D11013P to the P110 panel.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

EFFECTIVITY
ARO ALL

27-41 TASK 817

D633W103-ARO

Page 256
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (b) If the resistance is 50-100 ohms, then continue (WDM 27-41-14):

- (5) Replace this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R

- (a) Re-connect connectors DM27213B and DM27213D to the STCM-R.
- (b) Re-connect connector D11013P to the P110 panel.
- (c) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR
K	18	C27625	AIL TRIM ACTR
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (6) Replace the circuit breaker monitor, R27612, on the left power management panel, P110 (WDM 27-41-14).
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

D. Fault Isolation Procedure - Circuit Breaker Closed

- (1) Replace this circuit breaker

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R

(WDM 27-41-14):

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

EFFECTIVITY
ARO ALL

27-41 TASK 817

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 257
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the circuit breaker monitor, R27612, on the left power management panel, P110 (WDM 27-41-14).
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the I/O card 2, M27213 in the electrical load management system (ELMS) electronic unit, M24400, on the left power management panel, P110.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Repair the wiring between these parts (WDM 27-41-14):
 - (a) The circuit breaker monitor, R27612, and the I/O card 2, M27213 in the electrical load management system (ELMS) electronic unit, M24400, in the left power management panel, P110.
 - (b) The circuit breaker monitor, R27612, and ground (WDM 27-41-14).
 - (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

818. Stabilizer Trim Control Module (Right) Control Solenoid Valve Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15016.

B. Initial Evaluation

- (1) If the STAB R cutout switch (on the control stand in the flight compartment) is not in the NORM position, then set it to the NORM position.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-41 TASKS 817-818

D633W103-ARO

Page 258
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

819. STCM-R Trim Up Solenoid Valve Command Problems from ACE-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10020.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.
- (3) If MM 27-10019 is also set, check the operation of the STCM Motor Operated Shutoff Valves (MOSOVs). Do this task: Stabilizer Cutout Test, AMM TASK 27-41-00-700-811

C. Fault Isolation Procedure

- (1) Replace the solenoid valve, V2, on the right stabilizer trim control module (STCM-R), M27213. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801

NOTE: This solenoid valve controls the trim up function.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right stabilizer position module, M27031. These are the tasks:

Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801,
Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

EFFECTIVITY
ARO ALL

27-41 TASK 819

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 259
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the power wiring:
- (a) Disconnect connector DM27213C from the STCM-R, M27213.
 - (b) Do a check for 28 VDC from pin 8 of connector DM27213C at the STCM-R, M27213, to structure ground (WDM 27-41-13).
 - (c) If there is not 28V DC at pin 8 of connector DM27213C, then do these steps:
 - 1) Remove the right power supply assembly (PSA-R), M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27213C at the STCM-R, M27213C, and connector DM24201AD at the E5-1 shelf (WDM 27-41-13):

DM27213C	DM24201AD
pin 8	pin 17

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27213C.
 - c) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27213C.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If there is 28V DC at pin 2 of connector DM27213C, then continue.
- (6) Do this check of the wiring from the position module to the STCM-R:
- (a) Disconnect connector DM27031 from the position module, M27031.
 - (b) Do a wiring check between these pins of connector DM27031 at the position module and connector DM27213C at the STCM-R (WDM 27-41-13):

DM27031	DM27213C
pin 9	pin 5

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27031.

EFFECTIVITY
ARO ALL

27-41 TASK 819

D633W103-ARO

Page 260
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-connect connector DM27213C.
- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-connect connector DM27013C.
- (7) Do this check of the command wiring:
 - (a) Open these circuit breakers and attach safety tags on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DM27031 at the position module, M27031 (WDM 27-41-13):

DM27221AC	DM27031
pin A2	pin 10

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27031.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-41 TASK 819

D633W103-ARO

Page 261
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (f) Re-connect connector DM27031.
- (8) Do this check of the ground wiring:
 - (a) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27221AB at the E5-2 shelf and connector DM24201AD at the E5-1 shelf (WDM 27-41-13):

DM27221AB	DM24201AD
pin B8	pin 18

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Make sure that these circuit breakers are closed on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (9) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

820. Stabilizer Position Module (Left) Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11003.

EFFECTIVITY
ARO ALL

27-41 TASKS 819-820

D633W103-ARO

Page 262
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the left stabilizer position module, M27015. To adjust it, do this task: Horizontal Stabilizer Position Module and Travel Limiter Adjustment, AMM TASK 27-48-00-820-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Open these circuit breaker and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27015 from the left stabilizer position module.
- (d) Do a wiring check between these contacts of connector DM27121AC (for ACE-L1) and connector DM27015 (at the stabilizer position module) (WDM 27-41-12):

<u>DM27121AC</u>		<u>DM27015</u>
pin C1	.....	pin 4
pin C2	.....	pin 1

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27015 to the stabilizer position module.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-41 TASK 820

D633W103-ARO

Page 263
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27015 to the stabilizer position module.
- (3) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the left stabilizer position module, M27015.

These are the tasks:

Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801,

Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

EFFECTIVITY
ARO ALL

27-41 TASK 820

D633W103-ARO

Page 264
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

821. Alternate Pitch Trim Lever Switch Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-18000.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) If the ALTN PITCH TRIM LEV status message was displayed and the right and left alternate pitch trim levers are more than 0.9 inches (23 millimeters) apart, do this task: Stabilizer Control Cable Adjustment, AMM TASK 27-41-00-800-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) If the ALTN PITCH TRIM LEV status message was displayed and the right and left alternate pitch trim levers are less than 0.9 inches (23 millimeters) apart, then continue.
- (3) Monitor page 3 of the maintenance pages for the flight controls, on the multi-functional display (MFD) (AMM TASK 31-61-00-800-804).
 - (a) Pressurize the left, center, and right hydraulic systems. To pressurize them, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: The stabilizer is only operated by the center and right hydraulic systems, but all three must be pressurized for the PFCs to find if there is a problem.
 - (b) Find the applicable indications in Table 201 and Table 202 below.
 - (c) If the table has a corrective action for the indications, then do these steps:
 - 1) Make a note of the corrective action.
 - 2) Do the applicable steps for the corrective action.

NOTE: The steps are after Table 205 and Table 206.
 - (d) If the table has no corrective action for the indications, then continue (go to the first step after Table 201).

EFFECTIVITY
ARO ALL

27-41 TASKS 820-821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 265
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Table 201/27-41-00-993-801 AIMS-L

	ACTIVE	DIRECTION	CORRECTIVE ACTION
ALTN PITCH TRIM LVR ARM	NO	*[1]	
	YES/ FAULT		WIRING BETWEEN ALT PITCH TRIM LVR S27046 AND L-AIMS
	NO		WIRING BETWEEN ALT PITCH TRIM LVR S27046 AND R-AIMS
	YES/ FAULT		REPLACE ALT PITCH TRIM LVR S27046
ALTN PITCH TRIM LVR CTRL	NO		
	YES/ FAULT		WIRING BETWEEN ALT PITCH TRIM LVR S27047 AND L-AIMS
	NO		WIRING BETWEEN ALT PITCH TRIM LVR S27047 AND R-AIMS
	YES/ FAULT		REPLACE ALT PITCH TRIM LVR S27047

*[1] If the DIRECTION field shows a display when the pitch trim lever switches are in the center off position, the switch rigging should be checked. To check the switch rigging, do this task: Alternate Pitch Trim Lever Switches Installation, AMM TASK 27-41-06-400-802.

Table 202/27-41-00-993-802 AIMS-R

	ACTIVE	DIRECTION	CORRECTIVE ACTION
ALTN PITCH TRIM LVR ARM	NO	*[1]	
	NO		WIRING BETWEEN ALT PITCH TRIM LVR S27046 AND L-AIMS
	YES/ FAULT		WIRING BETWEEN ALT PITCH TRIM LVR S27046 AND R-AIMS
	YES/ FAULT		REPLACE ALT PITCH TRIM LVR S27046
ALTN PITCH TRIM LVR CTRL	NO		
	NO		WIRING BETWEEN ALT PITCH TRIM LVR S27047 AND L-AIMS
	YES/ FAULT		WIRING BETWEEN ALT PITCH TRIM LVR S27047 AND R-AIMS
	YES/ FAULT		REPLACE ALT PITCH TRIM LVR S27047

*[1] If the DIRECTION field shows a display when the pitch trim lever switches are in the center off position, the switch rigging should be checked. To check the switch rigging, do this task: Alternate Pitch Trim Lever Switches Installation, AMM TASK 27-41-06-400-802.

(e) Slowly push the ALTN PITCH TRIM levers fully aft.

NOTE: Make sure you keep the two levers together as you move them.

(f) Find the applicable indications in Table 203 and Table 204 below.

(g) If the table has a corrective action for the indications, then do these steps:

EFFECTIVITY
ARO ALL

27-41 TASK 821

D633W103-ARO

Page 266
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 1) Make a note of the corrective action.
- 2) Do the applicable steps for the corrective action.

NOTE: The steps are after Table 205 and Table 206.

- (h) If the table has no corrective action for the indications, then continue (go to the first step after Table 203 and Table 204).

Table 203/27-41-00-993-803 AIMS-L

INDICATION	ACTIVE	DIRECTION	CORRECTIVE ACTION
ALTN PITCH TRIM LVR ARM	YES	UP	
	YES	DOWN/ FAULT	WIRING BETWEEN ALT PITCH TRIM LVR S27050 AND L-AIMS
	YES	UP	WIRING BETWEEN ALT PITCH TRIM LVR S27050 AND R-AIMS
	YES	DOWN/ FAULT	REPLACE ALT PITCH TRIM LVR S27050
	NO/ FAULT	UP	WIRING BETWEEN ALT PITCH TRIM LVR S27046 AND L-AIMS
	YES	UP	WIRING BETWEEN ALT PITCH TRIM LVR S27046 AND R-AIMS
ALTN PITCH TRIM LVR CRTL	NO/ FAULT	UP	REPLACE ALT PITCH TRIM LVR S27046
	YES	UP	
	YES	DOWN/ FAULT	WIRING BETWEEN ALT PITCH TRIM LVR S27048 AND L-AIMS
	YES	UP	WIRING BETWEEN ALT PITCH TRIM LVR S27048 AND R-AIMS
	YES	DOWN/ FAULT	REPLACE ALT PITCH TRIM LVR S27048
	NO/ FAULT	UP	WIRING BETWEEN ALT PITCH TRIM LVR S27047 AND L-AIMS
	YES	UP	WIRING BETWEEN ALT PITCH TRIM LVR S27047 AND R-AIMS
	NO/ FAULT	UP	REPLACE ALT PITCH TRIM LVR S27047

Table 204/27-41-00-993-804 AIMS-R

INDICATION	ACTIVE	DIRECTION	CORRECTIVE ACTION
ALTN PITCH TRIM LVR ARM	YES	UP	
	YES	UP	WIRING BETWEEN ALT PITCH TRIM LVR S27050 AND L-AIMS
	YES	DOWN/ FAULT	WIRING BETWEEN ALT PITCH TRIM LVR S27050 AND R-AIMS
	YES	DOWN/ FAULT	REPLACE ALT PITCH TRIM LVR S27050

EFFECTIVITY
ARO ALL

27-41 TASK 821

D633W103-ARO

Page 267
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

Table 204/27-41-00-993-804 AIMS-R (Continued)

INDICATION	ACTIVE	DIRECTION	CORRECTIVE ACTION
ALTN PITCH TRIM LVR CRTL	YES	UP	WIRING BETWEEN ALT PITCH TRIM LVR S27046 AND L-AIMS
	NO/ FAULT	UP	WIRING BETWEEN ALT PITCH TRIM LVR S27046 AND R-AIMS
	NO/ FAULT	UP	REPLACE ALT PITCH TRIM LVR S27046
	YES	UP	
	YES	UP	WIRING BETWEEN ALT PITCH TRIM LVR S27048 AND L-AIMS
	YES	DOWN/ FAULT	WIRING BETWEEN ALT PITCH TRIM LVR S27048 AND R-AIMS
	YES	DOWN/ FAULT	REPLACE ALT PITCH TRIM LVR S27048
	YES	UP	WIRING BETWEEN ALT PITCH TRIM LVR S27047 AND L-AIMS
	NO/ FAULT	UP	WIRING BETWEEN ALT PITCH TRIM LVR S27047 AND R-AIMS
	NO/ FAULT	UP	REPLACE ALT PITCH TRIM LVR S27047

- (i) Slowly push the ALTN PITCH TRIM levers fully forward.

NOTE: Make sure you keep the two levers together as you move them.

- (j) Find the applicable indications in Table 205 and Table 206 below.

- (k) If the table has a corrective action for the indications, then do these steps:

- 1) Make a note of the corrective action.
- 2) Do the applicable steps for the corrective action.

NOTE: The steps are after Table 205 and Table 206.

Table 205/27-41-00-993-805 AIMS-L

INDICATION	ACTIVE	DIRECTION	CORRECTIVE ACTION
ALTN PITCH TRIM LVR ARM	YES	DOWN	
	YES	UP/ FAULT	WIRING BETWEEN ALT PITCH TRIM LVR S27051 AND L-AIMS
	YES	DOWN	WIRING BETWEEN ALT PITCH TRIM LVR S27051 AND R-AIMS
	YES	UP/ FAULT	REPLACE ALT PITCH TRIM LVR S27051
	NO/ FAULT	DOWN	WIRING BETWEEN ALT PITCH TRIM LVR S27046 AND L-AIMS
	YES	DOWN	WIRING BETWEEN ALT PITCH TRIM LVR S27046 AND R-AIMS
	NO/ FAULT	DOWN	REPLACE ALT PITCH TRIM LVR S27046

EFFECTIVITY
ARO ALL

27-41 TASK 821

D633W103-ARO

Page 268
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

Table 205/27-41-00-993-805 AIMS-L (Continued)

INDICATION	ACTIVE	DIRECTION	CORRECTIVE ACTION
ALTN PITCH TRIM LVR CRTL	YES	DOWN	
	YES	UP/ FAULT	WIRING BETWEEN ALT PITCH TRIM LVR S27049 AND L-AIMS
	YES	DOWN	WIRING BETWEEN ALT PITCH TRIM LVR S27049 AND R-AIMS
	YES	UP/ FAULT	REPLACE ALT PITCH TRIM LVR S27049
	NO/ FAULT	DOWN	WIRING BETWEEN ALT PITCH TRIM LVR S27047 AND L-AIMS
	YES	DOWN	WIRING BETWEEN ALT PITCH TRIM LVR S27047 AND R-AIMS
	NO/ FAULT	DOWN	REPLACE ALT PITCH TRIM LVR S27047

Table 206/27-41-00-993-806 AIMS-R

INDICATION	ACTIVE	DIRECTION	CORRECTIVE ACTION
ALTN PITCH TRIM LVR ARM	YES	DOWN	
	YES	DOWN	WIRING BETWEEN ALT PITCH TRIM LVR S27051 AND L-AIMS
	YES	UP/ FAULT	WIRING BETWEEN ALT PITCH TRIM LVR S27051 AND R-AIMS
	YES	UP/ FAULT	REPLACE ALT PITCH TRIM LVR S27051
	YES	DOWN	WIRING BETWEEN ALT PITCH TRIM LVR S27046 AND L-AIMS
	NO/ FAULT	DOWN	WIRING BETWEEN ALT PITCH TRIM LVR S27046 AND R-AIMS
	NO/ FAULT	DOWN	REPLACE ALT PITCH TRIM LVR S27046
ALTN PITCH TRIM LVR CRTL	YES	DOWN	
	YES	DOWN	WIRING BETWEEN ALT PITCH TRIM LVR S27049 AND L-AIMS
	YES	UP/ FAULT	WIRING BETWEEN ALT PITCH TRIM LVR S27049 AND R-AIMS
	YES	UP/ FAULT	REPLACE ALT PITCH TRIM LVR S27049
	YES	DOWN	WIRING BETWEEN ALT PITCH TRIM LVR S27047 AND L-AIMS
	NO/ FAULT	DOWN	WIRING BETWEEN ALT PITCH TRIM LVR S27047 AND R-AIMS
	NO/ FAULT	DOWN	REPLACE ALT PITCH TRIM LVR S27047

EFFECTIVITY
ARO ALL

27-41 TASK 821

D633W103-ARO

Page 269
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (4) If the corrective action is the wiring between the alternate pitch trim lever, S27046, and L-AIMS, then do these steps:
- Remove the left aircraft information management system (AIMS-L) cabinet, M31101, from the E3-1 shelf. To remove it, do this task: AIMS Cabinet Removal, AMM TASK 31-41-21-000-802.
 - Do a wiring check between pin 45 of connector D6611 for the AIMS-L and structure ground (WDM 27-41-15).
 - Make sure there is a continuity.
 - Push the alternate pitch trim levers fully forward.
 - Make sure there is no continuity.
 - Pull the alternate pitch trim levers fully aft.
 - Make sure there is no continuity.
 - Release the alternate pitch trim levers.
 - If you find a problem with the wiring, then do these steps:
 - Repair the wiring.
 - Re-install the AIMS-L, M31101. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801.
 - Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If you do not find a problem with the wiring, then do these steps:
 - Do the corrective action below for the replacement of the input/output module in the L-AIMS.
- (5) If the corrective action is the wiring between the alternate pitch trim lever, S27046, and R-AIMS, then do these steps:
- Remove the right aircraft information management system (AIMS-R) cabinet, M31201, from the E2-1 shelf. To remove it, do this task: AIMS Cabinet Removal, AMM TASK 31-41-21-000-802.
 - Do a wiring check between pin 45 of connector D6711 for the AIMS-R and structure ground (WDM 27-41-15).
 - Make sure there is a continuity.
 - Push the alternate pitch trim levers fully forward.
 - Make sure there is no continuity.
 - Pull the alternate pitch trim levers fully aft.
 - Make sure there is no continuity.
 - Release the alternate pitch trim levers.
 - If you find a problem with the wiring, then do these steps:
 - Repair the wiring.
 - Re-install the AIMS-R, M31201. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801.
 - Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.

EFFECTIVITY
ARO ALL

27-41 TASK 821

D633W103-ARO

Page 270
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then do these steps:
 - 1) Do the corrective action below for the replacement of the input/output module in the R-AIMS.
- (6) If the corrective action is the wiring between the alternate pitch trim lever, S27050 and L-AIMS, then do these steps:
 - (a) Remove the left aircraft information management system (AIMS-L) cabinet, M31101, from the E3-1 shelf. To remove it, do this task: AIMS Cabinet Removal, AMM TASK 31-41-21-000-802.
 - (b) Do a wiring check between pin 24 of connector D6611 for the AIMS-L and structure ground (WDM 27-41-15).
 - 1) Make sure there is a continuity.
 - 2) Push the alternate pitch trim levers fully forward.
 - 3) Make sure there is a continuity.
 - 4) Pull the alternate pitch trim levers fully aft.
 - 5) Make sure there is no continuity.
 - 6) Release the alternate pitch trim levers.
 - (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the AIMS-L, M31101. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801.
 - 3) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If you do not find a problem with the wiring, then do these steps:
 - 1) Do the corrective action below for the replacement of the input/output module in the L-AIMS.
- (7) If the corrective action is the wiring between the alternate pitch trim lever, S27050 and R-AIMS, then do these steps:
 - (a) Remove the right aircraft information management system (AIMS-R) cabinet, M31201, from the E2-1 shelf. To remove it, do this task: AIMS Cabinet Removal, AMM TASK 31-41-21-000-802.
 - (b) Do a wiring check between pin 24 of connector D6711 for the AIMS-R and structure ground (WDM 27-41-15).
 - 1) Make sure there is a continuity.
 - 2) Push the alternate pitch trim levers fully forward.
 - 3) Make sure there is a continuity.
 - 4) Pull the alternate pitch trim levers fully aft.
 - 5) Make sure there is no continuity.
 - 6) Release the alternate pitch trim levers.
 - (c) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-41 TASK 821

D633W103-ARO

Page 271
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-install the AIMS-R, M31202. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801.
- 3) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
- 4) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then do these steps:
 - 1) Do the corrective action below for the replacement of the input/output module in the R-AIMS.
- (8) If the corrective action is the wiring between the alternate pitch trim lever, S27051, and L-AIMS, then do these steps:
 - (a) Remove the left aircraft information management system (AIMS-L) cabinet, M31101, from the E3-1 shelf. To remove it, do this task: AIMS Cabinet Removal, AMM TASK 31-41-21-000-802.
 - (b) Do a wiring check between pin 46 of connector D6611 for the AIMS-L and structure ground (WDM 27-41-15).
 - 1) Make sure there is a continuity.
 - 2) Push the alternate pitch trim levers fully forward.
 - 3) Make sure there is no continuity.
 - 4) Pull the alternate pitch trim levers fully aft.
 - 5) Make sure there is a continuity.
 - 6) Release the alternate pitch trim levers.
 - (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the AIMS-L, M31101. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801.
 - 3) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If you do not find a problem with the wiring, then do these steps:
 - 1) Do the corrective action below for the replacement of the input/output module in the L-AIMS.
- (9) If the corrective action is the wiring between the alternate pitch trim lever, S27051, and R-AIMS, then do these steps:
 - (a) Remove the right aircraft information management system (AIMS-R) cabinet, M31201, from the E2-1 shelf. To remove it, do this task: AIMS Cabinet Removal, AMM TASK 31-41-21-000-802.
 - (b) Do a wiring check between pin 46 of connector D6711 for the AIMS-R and structure ground (WDM 27-41-15).
 - 1) Make sure there is a continuity.
 - 2) Push the alternate pitch trim levers fully forward.

EFFECTIVITY
ARO ALL

27-41 TASK 821

D633W103-ARO

Page 272
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) Make sure there is no continuity.
- 4) Pull the alternate pitch trim levers fully aft.
- 5) Make sure there is a continuity.
- 6) Release the alternate pitch trim levers.
- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the AIMS-R, M31201. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801.
 - 3) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then do these steps:
 - 1) Do the corrective action below for the replacement of the input/output module in the R-AIMS.
- (10) If the corrective action is the wiring between the alternate pitch trim lever switch, S27047, and L-AIMS, then do these steps:
 - (a) Remove the left aircraft information management system (AIMS-L) cabinet, M31101, from the E3-1 shelf. To remove it, do this task: AIMS Cabinet Removal, AMM TASK 31-41-21-000-802.
 - (b) Do a wiring check between pin 33 of connector D6623 for the AIMS-L and structure ground (WDM 27-41-15).
 - 1) Make sure there is a continuity.
 - 2) Push the alternate pitch trim levers fully forward.
 - 3) Make sure there is no continuity.
 - 4) Pull the alternate pitch trim levers fully aft.
 - 5) Make sure there is no continuity.
 - 6) Release the alternate pitch trim levers.
 - (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the AIMS-L, M31101. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801.
 - 3) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If you do not find a problem with the wiring, then do these steps:
 - 1) Do the corrective action below for the replacement of the input/output module in the L-AIMS.
- (11) If the corrective action is the wiring between the alternate pitch trim lever switch, S27047, and R-AIMS, then do these steps:

EFFECTIVITY
ARO ALL

27-41 TASK 821

D633W103-ARO

Page 273
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the right aircraft information management system (AIMS-R) cabinet, M31201, from the E2-1 shelf. To remove it, do this task: AIMS Cabinet Removal, AMM TASK 31-41-21-000-802.
 - (b) Do a wiring check between pin 33 of connector D6723 for the AIMS-R and structure ground (WDM 27-41-15).
 - 1) Make sure there is a continuity.
 - 2) Push the alternate pitch trim levers fully forward.
 - 3) Make sure there is no continuity.
 - 4) Pull the alternate pitch trim levers fully aft.
 - 5) Make sure there is no continuity.
 - 6) Release the alternate pitch trim levers.
 - (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the AIMS-R, M31201. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801.
 - 3) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If you do not find a problem with the wiring, then do these steps:
 - 1) Do the corrective action below for the replacement of the input/output module in the R-AIMS.
- (12) If the corrective action is the wiring between the alternate pitch trim lever, S27049, and L-AIMS:
- (a) Remove the left aircraft information management system (AIMS-L) cabinet, M31101, from the E3-1 shelf. To remove it, do this task: AIMS Cabinet Removal, AMM TASK 31-41-21-000-802.
 - (b) Do a wiring check between pin 41 of connector D6623 for the AIMS-L and structure ground (WDM 27-41-15).
 - 1) Make sure there is a continuity.
 - 2) Push the alternate pitch trim levers fully forward.
 - 3) Make sure there is no continuity.
 - 4) Pull the alternate pitch trim levers fully aft.
 - 5) Make sure there is a continuity.
 - 6) Release the alternate pitch trim levers.
 - (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the AIMS-L, M31101. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801.
 - 3) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-41 TASK 821

D633W103-ARO

Page 274
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If you do not find a problem with the wiring, then do these steps:
 - 1) Do the corrective action below for the replacement of the input/output module in the L-AIMS.
- (13) If the corrective action is the wiring between the alternate pitch trim lever, S27049, and R-AIMS:
 - (a) Remove the right aircraft information management system (AIMS-R) cabinet, M31201, from the E2-1 shelf. To remove it, do this task: AIMS Cabinet Removal, AMM TASK 31-41-21-000-802.
 - (b) Do a wiring check between pin 41 of connector D6723 for the AIMS-R and structure ground (WDM 27-41-15).
 - 1) Make sure there is a continuity.
 - 2) Push the alternate pitch trim levers fully forward.
 - 3) Make sure there is no continuity.
 - 4) Pull the alternate pitch trim levers fully aft.
 - 5) Make sure there is a continuity.
 - 6) Release the alternate pitch trim levers.
 - (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the AIMS-R, M31201. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801.
 - 3) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If you do not find a problem with the wiring, then do these steps:
 - 1) Do the corrective action below for the replacement of the input/output module in the R-AIMS.
- (14) If the corrective action is the wiring between the alternate pitch trim lever switch, S27048, and L-AIMS, then do these steps:
 - (a) Remove the left aircraft information management system (AIMS-L) cabinet, M31101, from the E3-1 shelf. To remove it, do this task: AIMS Cabinet Removal, AMM TASK 31-41-21-000-802.
 - (b) Do a wiring check between pin 24 of connector D6623 for the AIMS-L and structure ground (WDM 27-41-15).
 - 1) Make sure there is a continuity.
 - 2) Push the alternate pitch trim levers fully forward.
 - 3) Make sure there is a continuity.
 - 4) Pull the alternate pitch trim levers fully aft.
 - 5) Make sure there is no continuity.
 - 6) Release the alternate pitch trim levers.
 - (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-41 TASK 821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 275
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install the AIMS-L, M31101. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801.
- 3) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
- 4) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then do these steps:
 - 1) Do the corrective action below for the replacement of the input/output module in the L-AIMS.
- (15) If the corrective action is the wiring between the alternate pitch trim lever switch, S27048, and R-AIMS, then do these steps:
 - (a) Remove the right aircraft information management system (AIMS-R) cabinet, M31201, from the E2-1 shelf. To remove it, do this task: AIMS Cabinet Removal, AMM TASK 31-41-21-000-802.
 - (b) Do a wiring check between pin 24 of connector D6723 for the AIMS-R and structure ground (WDM 27-41-15).
 - 1) Make sure there is a continuity.
 - 2) Push the alternate pitch trim levers fully forward.
 - 3) Make sure there is a continuity.
 - 4) Pull the alternate pitch trim levers fully aft.
 - 5) Make sure there is no continuity.
 - 6) Release the alternate pitch trim levers.
 - (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the AIMS-R, M31201. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801.
 - 3) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - 4) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If you do not find a problem with the wiring, then do these steps:
 - 1) Do the corrective action below for the replacement of the input/output module in the R-AIMS.
- (16) If the corrective action is the replacement of the applicable alternate pitch trim lever switch, then do these steps:
 - (a) Replace the applicable alternate pitch trim switch.

These are the tasks:

Alternate Pitch Trim Lever Switches Removal, AMM TASK 27-41-06-000-801,
Alternate Pitch Trim Lever Switches Installation, AMM TASK 27-41-06-400-802.
 - (b) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-41 TASK 821

D633W103-ARO

Page 276
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (17) If the corrective action is the replacement of the input/output module in the applicable AIMS, then do these steps:
- (a) Replace the #1 input/output module (IOM(M009) in the applicable AIMS.
These are the tasks:
Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801,
Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (b) Re-install the applicable AIMS cabinet. To install it, do this task: AIMS Cabinet Installation, AMM TASK 31-41-21-400-801
 - (c) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
 - (f) Replace the #2 IOM(M008) in the applicable AIMS.
These are the tasks:
Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801,
Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (g) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - (h) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (i) If the maintenance message shows on the ground test display, then continue.
 - (j) Replace the #3 IOM(M004) in the applicable AIMS.
These are the tasks:
Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801,
Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - (k) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - (l) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (m) If the maintenance message shows on the ground test display, then continue.
- (18) Replace the #4 IOM(M003) in the applicable AIMS.
These are the tasks:
Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801,
Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
- (a) Do this ground test on the MAT: 27 Primary Flight Control, System Test, Alternate Pitch Trim Levers.
 - (b) If the maintenance message does not show on the ground test display, you corrected the fault.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-41 TASK 821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 277
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

822. ALTN PITCH TRIM Command Problems - Fault Isolation

A. Initial Evaluation

- (1) Pressurize the right and center hydraulic systems. To pressurize the right and center hydraulic systems, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (a) Move the ALTN PITCH TRIM lever to the NOSE UP then to the NOSE DOWN position.
 - (b) If the stabilizer does not move up and down as commanded, then do the Fault Isolation Procedure below.
 - (c) If the stabilizer moves up and down as commanded, then there was an intermittent fault. Do this step to complete the task:
 - 1) Do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

B. Fault Isolation Procedure

- (1) Adjust the stabilizer control cable. To adjust it, do this task: Stabilizer Control Cable Adjustment, AMM TASK 27-41-00-800-801.
 - (a) Pressurize the right and center hydraulic systems. To pressurize the right and center hydraulic systems, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (b) Move the ALTN PITCH TRIM lever to the NOSE UP then to the NOSE DOWN position.
 - (c) If the stabilizer moves up and down as commanded, you corrected the fault. Do this step to complete the task:
 - 1) Do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (d) If the stabilizer does not move up and down as commanded, then continue.
- (2) Do a check of the stabilizer trim control module (STCM):
 - (a) Remove hydraulic power from the center hydraulic system. To remove it, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (b) Move the ALTN PITCH TRIM lever to the NOSE UP then to the NOSE DOWN position.
 - (c) If the stabilizer does not move up and down as commanded, then do these steps:
 - 1) Exchange the ACE for M27213. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - 2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Replace the right STCM, M27213. These are the tasks:
 - Stabilizer Trim Control Modules (STCM) Removal, AMM TASK 27-41-07-000-801
 - Stabilizer Trim Control Modules (STCM) Installation, AMM TASK 27-41-07-400-801
 - 4) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 5) Move the ALTN PITCH TRIM lever to the NOSE UP then to the NOSE DOWN position.

EFFECTIVITY
ARO ALL

27-41 TASK 822

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 278
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 6) If the stabilizer moves up and down as commanded, you corrected the fault. Do this step to complete the task:
 - a) Do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (d) If the stabilizer moves up and down as commanded, then continue.
- (3) Exchange the ACE for M27313. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (5) Replace the center STCM, M27313. These are the tasks:
 - Stabilizer Trim Control Modules (STCM) Removal, AMM TASK 27-41-07-000-801
 - Stabilizer Trim Control Modules (STCM) Installation, AMM TASK 27-41-07-400-801
- (a) Pressurize the center hydraulic system. To pressurize it, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (b) Move the ALTN PITCH TRIM lever to the NOSE UP then to the NOSE DOWN position.
- (c) If the stabilizer moves up and down as commanded, you corrected the fault. Do this step to complete the task:
 - 1) Do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

————— END OF TASK —————

823. ALTN PITCH TRIM Does Not Move Freely - Fault Isolation

A. Initial Evaluation

- (1) Pressurize the right and center hydraulic systems. To pressurize the right and center hydraulic systems, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (a) Move the ALTN PITCH TRIM lever to the NOSE UP then to the NOSE DOWN position.
 - (b) If the stabilizer does not move freely, then do the Fault Isolation Procedure below.
 - (c) If the stabilizer moves freely, then there was an intermittent fault. Do this step to complete the task:
 - 1) Do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

B. Fault Isolation Procedure

- (1) Adjust the ALTN PITCH TRIM lever. To adjust it, do this task: Alternate Pitch Trim Lever Adjustment, AMM TASK 27-41-00-800-803.
 - (a) Pressurize the right and center hydraulic systems. To pressurize the right and center hydraulic systems, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (b) Move the ALTN PITCH TRIM lever to the NOSE UP then to the NOSE DOWN position.
 - (c) If the ALTN PITCH TRIM lever moves freely, you corrected the fault. Do this step to complete the task:
 - 1) Do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

EFFECTIVITY
ARO ALL

27-41 TASKS 822-823

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 279
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If the ALTN PITCH TRIM lever does not move freely, then continue.
- (2) Adjust the stabilizer control cable. To adjust it, do this task: Stabilizer Control Cable Adjustment, AMM TASK 27-41-00-800-801.
 - (a) Move the ALTN PITCH TRIM lever to the NOSE UP then to the NOSE DOWN position.
 - (b) If the ALTN PITCH TRIM lever moves freely, you corrected the fault. Do this step to complete the task:
 - 1) Do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
 - (c) If the ALTN PITCH TRIM lever does not move freely, then continue.
- (3) Adjust the stabilizer trim control module. To adjust it, do this task: Stabilizer Trim Control Module Adjustment (Rigging) (Fig. 501), AMM TASK 27-41-00-800-802.
 - (a) Move the ALTN PITCH TRIM lever to the NOSE UP then to the NOSE DOWN position.
 - (b) If the ALTN PITCH TRIM lever moves freely, you corrected the fault. Do this step to complete the task:
 - 1) Do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

END OF TASK

824. Stabilizer Position Indicator (Left) Problems (Blank or No Light) - Fault Isolation

A. Initial Evaluation

NOTE: The stabilizer position indicator has a temperature sensor in it. If the temperature in the indicator is less than approximately -5° C (23° F), the light will not come on.

- (1) Open and then close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

NOTE: Cycling this circuit breaker resets the stabilizer trim indicator. The stabilizer trim indicator has a software problem that makes the light go off.

- (a) If the stabilizer position indicator operates correctly, then no repair is necessary.
- (b) If the stabilizer position indicator does not operate correctly, then continue.
- (2) Look to see if the stabilizer position or greenband indication shows on the stabilizer position indicator.
 - (a) If the stabilizer position or greenband indication shows on the stabilizer position indicator, then do this procedure below: Fault Isolation Procedure - No Light.
 - (b) If the stabilizer position and greenband indications do not show on the stabilizer position indicator, then do this procedure below: Fault Isolation Procedure - Indicator Blank.

B. Fault Isolation Procedure - No Light

- (1) Replace the stabilizer position indicator, N27001. These are the tasks:
 - Stabilizer Position Indicator Removal, AMM TASK 27-48-02-000-801
 - Stabilizer Position Indicator Installation, AMM TASK 27-48-02-400-801

NOTE: The light in the stabilizer position indicator cannot be replaced.

- (a) If the stabilizer position indicator comes on, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-41 TASKS 823-824

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 280
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure - Indicator Blank

- (1) Do this task: Stabilizer Position Indicator Removal, AMM TASK 27-48-02-000-801.
- (2) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- (3) Do a check for 28 VDC from pin 14 (+) to pin 15 (-) of connector DN27001 for the stabilizer position indicator (WDM 27-28-11) (WDM 27-48-11).
- (4) If there is not 28 VDC between pin 14 and pin 15 (of DN27001), then do these steps:
 - (a) Do a voltage check from pin 14 (+) of connector DN27001 for the stabilizer position indicator to structure ground (WDM 27-28-11) (WDM 27-48-11).
 - (b) If there is 28 VDC between pin 14 (of DN27001) and structure ground, then do these steps:
 - 1) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- 2) Repair the wiring from pin 15 (of DN27001) to structure ground (WDM 27-48-11).
- 3) Re-install the stabilizer position indicator. To install it, do this task: Stabilizer Position Indicator Installation, AMM TASK 27-48-02-400-801.
- 4) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- 5) If the stabilizer position indicator comes on, then you corrected the fault.
- (c) If there is not 28 VDC between pin 14 (of DN27001) and structure ground, then do these steps:
 - 1) Do the following (WDM 27-28-11):

Do a voltage check from term 2 (+) of this circuit breaker to structure ground:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- 2) If there is not 28 VDC at term 2 of the circuit breaker, C27633, then do these steps (WDM 27-28-11):
 - a) Replace this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

EFFECTIVITY
ARO ALL

27-41 TASK 824

D633W103-ARO

Page 281
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- b) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- c) Re-install the stabilizer position indicator. To install it, do this task: Stabilizer Position Indicator Installation, AMM TASK 27-48-02-400-801.

- d) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- e) If the stabilizer position indicator comes on, then you corrected the fault.

- 3) If there is 28 VDC at term 2 of the circuit breaker, C27633, then do these steps:

- a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- b) Repair the wiring between the circuit breaker and pin 14 of connector DN27001 (the connector for the stabilizer position indicator) (WDM 27-28-11) (WDM 27-48-11).

- c) Re-install the stabilizer position indicator. To install it, do this task: Stabilizer Position Indicator Installation, AMM TASK 27-48-02-400-801.

- d) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- e) If the stabilizer position indicator comes on, then you corrected the fault.

- (5) If there is 28 VDC between pin 14 and pin 15, then do these steps:

- (a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- (b) Install a new stabilizer position indicator. To install it, do this task: Stabilizer Position Indicator Installation, AMM TASK 27-48-02-400-801.

- (c) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	28	C27633	RUD TRIM POS IND/STAB POS IND-L

- (d) If the stabilizer position indicator comes on, then you corrected the fault.

- (e) If the stabilizer position indicator does not come on, then continue.

EFFECTIVITY
ARO ALL

27-41 TASK 824

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 282
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (6) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display for chapter 31 AIMS - Left AIMS. For instructions about the EXISTING FAULTS display, do this task: How to Find Active or Latched Maintenance Messages in One ATA System, AMM TASK 45-10-00-740-818.

NOTE: The stabilizer position indicator will go blank if the signal it receives from AIMS is bad.

- (a) If one or more maintenance messages show on the EXISTING FAULT display, then do these steps:
- 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.

————— **END OF TASK** —————

825. Stabilizer Position Indicators on Control Stand Do Not Agree - Fault Isolation

A. **Fault Isolation Procedure**

NOTE: Adjustment of the stabilizer position modules will not correct this fault. The primary flight computers (PFC) use the data from the three stabilizer position modules to calculate one value for stabilizer position. The PFCs then send only this one stabilizer position (through AIMS) to the two stabilizer position indicators.

- (1) Look at page 2 of the maintenance pages for the primary flight controls (on the MFD). For instructions on how to show a maintenance page, do this task: Showing a Maintenance Page, AMM TASK 31-61-00-800-804.
- (a) Use the following table to compare the position shown on the stabilizer position indicators to the position shown on the maintenance page. Find which stabilizer position indicator shows the incorrect position.

Stabilizer Position Indication Conversion

Stab Position Indicator Value	Maintenance Page Value (approximate)	Stab Position Indicator Value	Maintenance Page Value (approximate)
0	150	7.5	1
1	130	8	-11
2	110	9	-31
3	90	10	-51
4	70	11	-71
5	50	12	-91
6	30	13	-112
7	9	14	-132

- (b) Replace the stabilizer position indicator (N27001 left; N27002 right) that does not agree with the position that shows on the maintenance page. These are the tasks:
- Stabilizer Position Indicator Removal, AMM TASK 27-48-02-000-801
 - Stabilizer Position Indicator Installation, AMM TASK 27-48-02-400-801
- 1) If the stabilizer position indicators show the correct position, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-41 TASKS 824-825

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 283
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

826. Pitch Trim Channel (Center) Trim Up Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10000.

B. Description

- (1) The Right Pitch Trim Channel does not follow the Trim UP command.

C. Possible Causes

- (1) Center Stab Auto Shutdown Relay, K27007
- (2) Center Stabilizer Trim Control Module (STCM) Shutoff Valve, V6
- (3) Center STCM Trim-up Control Solenoid Valve, V2
- (4) Center STCM Trim-up Arm Solenoid Valve, V4
- (5) Center ACE, M27321
- (6) Left ACE-1, M27121
- (7) Center STCM, M27313
- (8) Center Stabilizer Position Module, M27030
- (9) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-C	STAB TRIM

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-L	STAB TRIM

E. Related Data

- (1) WDM 27-41-11
- (2) WDM 27-41-12

F. Initial Evaluation

- (1) Do the Stabilizer Mechanical Trim Rate Test (Right Hydraulic System), AMM TASK 27-41-00-700-808.
 - (a) If the Horizontal Stabilizer does not move up or down when you use the Center Hydraulic System, or it moves too slowly, then there is a mechanical problem with the Center Channel of the Stabilizer Trim System (STCM, Hydraulic Motor, or Hydraulic Brake). You must repair the mechanical problem(s) before you do the troubleshooting of the Electrical System below.
 - 1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there could be a problem related to the Electrical System. Do this Ground Test on the MAT: 27 Primary Flight Controls, SYSTEM TEST, Stabilizer System (How to Do a Ground Test, AMM TASK 45-10-00-740-819).

EFFECTIVITY
ARO ALL

27-41 TASK 826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 284
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent problem.

G. Fault Isolation Procedure

(1) Do this check to make sure that the Center Hydraulic System STCM Shutoff Valve, V6 is open.

(a) Find the STCM Shutoff Valve, V6 (AMM TASK 27-41-10-000-801).

(b) Make sure that the lever on the valve is in the OPEN position.

1) If the lever is not in the OPEN position, then do these steps:

a) Disconnect connector DM27313A from the STCM Shutoff Valve (WDM 27-41-11).

b) Do a check for 28 VDC between pins 3 and 1 of connector DM27313A.

<1> If you find 28V DC, replace the Center Stab Auto Shutdown Relay, K27007.

<a> Connect connector DM27313A to the STCM Shutoff Valve.

 Do the Repair Confirmation at the end of this task.

<2> If you do not find 28V DC, continue.

c) Do a check for 28 VDC between pins 2 and 1 of connector DM27313A.

<1> If you find 28V DC, replace the Center Stabilizer Trim Control Module (STCM) Shutoff Valve, V6. These are the tasks:

- STCM Shutoff Valve Removal, AMM TASK 27-41-10-000-801
- STCM Shutoff Valve Installation, AMM TASK 27-41-10-400-801

<a> Do the Repair Confirmation at the end of this task.

<2> If you do not find 28V DC between pins 2 and 1 of connector DM27313A, replace the Center Stab Auto Shutdown Relay, K27007.

<a> Connect connector DM27313A to the STCM Shutoff Valve.

 Do the Repair Confirmation at the end of this task.

- I. If the problem continues, examine and repair the wiring between the STCM and the Center Stab Auto Shutdown Relay, K27007 as follows (WDM 27-41-13):

NOTE: The remaining power wiring (from the circuit breaker to the cutout switch and from the switch to the relay) is monitored by the ACE. If this wiring (including the switch and the circuit breaker) were bad, there would be a different maintenance message.

**C STCM
DM27313A**
pin 2

**C STAB AUTO
SHTDN RLY
DK27007**
pin A3

2) If the lever on the STCM Shutoff Valve, V6, is in the OPEN position, then continue.

EFFECTIVITY
ARO ALL

27-41 TASK 826

D633W103-ARO

Page 285
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (2) Disconnect connector DM27313C from the Center STCM, M27313 (WDM 27-41-11).
- (3) Do a check for 28 VDC between pins 2 and 1 of connector DM27313C.
 - (a) If you find 28V DC, replace the Center STCM Trim Up Control Valve, V2. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find 28V DC, examine the wiring between the STCM and the Power Supply Assembly-Right (PSA-C), M24301 as follows (WDM 27-41-11):

C STCM	PSA-C
DM27313C	DM24301AD
pin 2	pin 17

- 1) If you find problems, do these steps:
 - a) Repair the wiring.
 - b) Connect connector DM27313C to the Center STCM, M27313.
 - c) Do the Repair Confirmation at the end of this task.
- (4) Disconnect connector DM27313B from the Center STCM, M27313 (WDM 27-41-12).
- (5) Do a check for 28V DC between pins 2 and 1 of connector DM27313B.
 - (a) If you find 28V DC, replace the Center STCM Trim Up Arm Valve, V4. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find 28V DC between pins 2 and 1 of connector DM27313B, examine the wiring between the STCM and the Power Supply Assembly-Left (PSA-L) (STAB TRIM ARM-C circuit breaker, CBB2) as follows (WDM 27-41-12).

C STCM	PSA-L
DM27313B	DM24101AD
pin 2	pin 17

- 1) If you find problems, do these steps:
 - a) Repair the wiring.
 - b) Connect connector DM27313B to the Center STCM, M27313.
 - c) Do the Repair Confirmation at the end of this task.
- (6) Exchange the ACE for M27321. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
 - (a) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 1) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
ARO ALL

27-41 TASK 826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 286
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (7) Exchange the ACE for M27121. This is the task: This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
 - (a) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 1) Do the Repair Confirmation at the end of this task.
- (8) Replace the Center STCM, M27313. These are the tasks:
 - Stabilizer Trim Control Modules (STCM) Removal, AMM TASK 27-41-07-000-801
 - Stabilizer Trim Control Modules (STCM) Installation, AMM TASK 27-41-07-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (9) Replace the Center SPM, M27030. These are the tasks:
 - Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801
 - Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
 - (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

— END OF TASK —

827. Pitch Trim Channel (Center) Trim Down Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10002.

B. Description

- (1) The Center Pitch Trim Channel does not follow the Trim DOWN command.

C. Possible Causes

- (1) Center Stab Auto Shutdown Relay, K27007
- (2) Center Stabilizer Trim Control Module (STCM) Shutoff Valve, V6
- (3) Center STCM Trim-down Control Solenoid Valve, V1
- (4) Center STCM Trim-down Arm Solenoid Valve, V3
- (5) Center ACE, M27321
- (6) Left ACE-1, M27121
- (7) Center STCM, M27313
- (8) Center Stabilizer Position Module, M27030
- (9) Wiring

EFFECTIVITY
ARO ALL

27-41 TASKS 826-827

D633W103-ARO

Page 287
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

D. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-C	STAB TRIM

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-L	STAB TRIM

E. Related Data

- (1) WDM 27-41-11
(2) WDM 27-41-12

F. Initial Evaluation

- (1) Do the Stabilizer Mechanical Trim Rate Test (Right Hydraulic System), AMM TASK 27-41-00-700-808.
- (a) If the Horizontal Stabilizer does not move up or down when you use the Center Hydraulic System, or it moves too slowly, then there is a mechanical problem with the Center Channel of the Stabilizer Trim System (STCM, Hydraulic Motor, or Hydraulic Brake). You must repair the mechanical problem(s) before you do the troubleshooting of the Electrical System below.
- 1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there could be a problem related to the Electrical System. Do this Ground Test on the MAT: 27 Primary Flight Controls, SYSTEM TEST, Stabilizer System (How to Do a Ground Test, AMM TASK 45-10-00-740-819).
 - a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent problem.

G. Fault Isolation Procedure

- (1) Do this check to make sure that the Center Hydraulic System STCM Shutoff Valve, V6 is open.
- (a) Find the STCM Shutoff Valve, V6 (AMM TASK 27-41-10-000-801).
- (b) Make sure that the lever on the valve is in the OPEN position.
- 1) If the lever is not in the OPEN position, then do these steps:
 - a) Disconnect connector DM27313A from the STCM Shutoff Valve (WDM 27-41-11).
 - b) Do a check for 28 VDC between pins 3 and 1 of connector DM27313A.

<1> If you find 28V DC, replace the Center Stab Auto Shutdown Relay, K27007.

<a> Connect connector DM27313A to the STCM Shutoff Valve.

EFFECTIVITY
ARO ALL

27-41 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 288
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Do the Repair Confirmation at the end of this task.
- <2> If you do not find 28V DC, continue.
- c) Do a check for 28 VDC between pins 2 and 1 of connector DM27313A.
- <1> If you find 28V DC, replace the Center Stabilizer Trim Control Module (STCM) Shutoff Valve, V6. These are the tasks:
- STCM Shutoff Valve Removal, AMM TASK 27-41-10-000-801
 - STCM Shutoff Valve Installation, AMM TASK 27-41-10-400-801
- <a> Do the Repair Confirmation at the end of this task.
- <2> If you do not find 28V DC between pins 2 and 1 of connector DM27313A, replace the Center Stab Auto Shutdown Relay, K27007.
- <a> Connect connector DM27313A to the STCM Shutoff Valve.
- Do the Repair Confirmation at the end of this task.
- I. If the problem continues, examine and repair the wiring between the STCM and the Center Stab Auto Shutdown Relay, K27007 as follows (WDM 27-41-13):

NOTE: The remaining power wiring (from the circuit breaker to the cutout switch and from the switch to the relay) is monitored by the ACE. If this wiring (including the switch and the circuit breaker) were bad, there would be a different maintenance message.

C STCM	C STAB AUTO
DM27313A	SHTDN RLY
	DK27007
pin 2	pin A3

- 2) If the lever on the STCM Shutoff Valve, V6, is in the OPEN position, then continue.
- (2) Disconnect connector DM27313C from the Center STCM, M27313 (WDM 27-41-11).
- (3) Do a check for 28 VDC between pins 2 and 1 of connector DM27313C.
- (a) If you find 28V DC, replace the Center STCM Trim Down Control Valve, V1. These are the tasks:
- STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
- 1) Do the Repair Confirmation at the end of this task.
- (b) If you do not find 28V DC, examine the wiring between the STCM and the Power Supply Assembly-Right (PSA-C), M24301 as follows (WDM 27-41-11):

C STCM	PSA-C
DM27313C	DM24301AD
pin 2	pin 17

- 1) If you find problems, do these steps:
- a) Repair the wiring.
- b) Connect connector DM27313C to the Center STCM, M27313.

EFFECTIVITY
ARO ALL

27-41 TASK 827

D633W103-ARO

Page 289
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) Do the Repair Confirmation at the end of this task.
- (4) Disconnect connector DM27313B from the Center STCM, M27313 (WDM 27-41-12).
- (5) Do a check for 28V DC between pins 2 and 1 of connector DM27313B.
- (a) If you find 28V DC, replace the Center STCM Trim Down Arm Valve, V3. These are the tasks:
- STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
- 1) Do the Repair Confirmation at the end of this task.
- (b) If you do not find 28V DC between pins 2 and 1 of connector DM27313B, examine the wiring between the STCM and the Power Supply Assembly-Left (PSA-L) (STAB TRIM ARM-C circuit breaker, CBB2) as follows (WDM 27-41-12).
- | C STCM | PSA-L |
|-----------------|------------------|
| DM27313B | DM24101AD |
| pin 2 | pin 17 |
- 1) If you find problems, do these steps:
- a) Repair the wiring.
- b) Connect connector DM27313B to the Center STCM, M27313.
- c) Do the Repair Confirmation at the end of this task.
- (6) Exchange the ACE for M27321. This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
- (a) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- 1) Do the Repair Confirmation at the end of this task.
- (7) Exchange the ACE for M27121. This is the task: This is the task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
- (a) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- 1) Do the Repair Confirmation at the end of this task.
- (8) Replace the Center STCM, M27313. These are the tasks:
- Stabilizer Trim Control Modules (STCM) Removal, AMM TASK 27-41-07-000-801
 - Stabilizer Trim Control Modules (STCM) Installation, AMM TASK 27-41-07-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (9) Replace the Center SPM, M27030. These are the tasks:
- Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801
 - Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801
- (a) Do the Repair Confirmation at the end of this task.

EFFECTIVITY
ARO ALL

27-41 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 290
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
 - (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

828. Center Stabilizer Uncommanded Trim Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10004.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the Extended Maintenance, Present Leg Faults display on the MAT for maintenance messages 27-10017, 27-10019, 27-10021, and 27-10023.
- (2) If maintenance message 27-10017 shows in Present Leg Faults, then do these steps:
 - (a) Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - (b) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (c) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (d) Replace the trim-up control solenoid valve, V002, on the center stabilizer trim control module, M27313. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
- (3) If maintenance message 27-10019 shows in Present Leg Faults, then do these steps:
 - (a) Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - (b) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (c) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801

EFFECTIVITY
ARO ALL

27-41 TASKS 827-828

D633W103-ARO

Page 291
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (d) Replace the trim-down control solenoid valve, V001, on the center stabilizer trim control module, M27313. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
- (4) If maintenance message 27-10021 shows in Present Leg Faults, then do these steps:
 - (a) Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - (b) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (c) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (d) Replace the trim-up arm solenoid valve, V004, on the center stabilizer trim control module, M27313. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
- (5) If maintenance message 27-10023 shows in Present Leg Faults, then do these steps:
 - (a) Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - (b) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (c) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (d) Replace the trim-down arm solenoid valve, V003, on the center stabilizer trim control module, M27313. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
- (6) If two of the specified maintenance messages showed in Present Leg Faults and you did the steps given above for each one, you corrected the fault.
- (7) If none of the specified maintenance messages showed in Present Leg Faults, then do these steps:
 - (a) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (b) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (c) Replace these solenoid valves on the center stabilizer trim control module, M27313. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801

EFFECTIVITY
ARO ALL

27-41 TASK 828

D633W103-ARO

Page 292
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
 - 1) Trim-up control, V002
 - 2) Trim-down control, V001
 - 3) Trim-up arm, V004
 - 4) Trim-down arm, V003.
- (d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- (8) Replace the center stabilizer trim control module, M27313. These are the tasks:
 - Stabilizer Trim Control Modules (STCM) Removal, AMM TASK 27-41-07-000-801
 - Stabilizer Trim Control Modules (STCM) Installation, AMM TASK 27-41-07-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

829. Center Stabilizer Auto Shutdown Relay Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10007.

B. Initial Evaluation

NOTE: This fault will occur if the "C" stabilizer cutout switch, on the control stand, is in the CUTOFF position.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of stabilizer cutout switch, S27055:
 - (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-R), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU

EFFECTIVITY
ARO ALL

27-41 TASKS 828-829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 293
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Remove the safety tag and close this circuit breaker on the PSA-C, M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-C	STAB TRIM

- (d) Set the STAB C CUTOUT switch on the pilots' control stand to the CUTOUT position.
- (e) Do a check for 28 VDC from pin A4 of connector DM27321AC to structure ground (WDM 27-41-11).
- (f) If there is 28 VDC at pin A4 of DM27321AC, then do these steps:
 - 1) Replace the stabilizer cutout switch C, S27055.
These are the tasks:
Stabilizer Cutout Switches Removal, AMM TASK 27-41-04-000-801,
Stabilizer Cutout Switches Installation, AMM TASK 27-41-04-400-801.
 - 2) Re-install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	6	CBB6-C	ELEV FEEL (C)

- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If there is not 28 VDC at pin A4 of DM27321AC, then continue.
 - 1) Set the STAB C CUTOUT switch on the pilots' control stand to the NORM position.
- (2) Do this check of the wiring for the auto shutoff output circuit:
 - (a) Do a check for 28 VDC from pin A4 of connector DM27321AC to structure ground (WDM 27-41-11).
 - (b) If there is 28 VDC at pin A4 of DM27321AC, then do these steps:

EFFECTIVITY
ARO ALL

27-41 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 294
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 2) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	6	CBB6-C	ELEV FEEL (C)

- 3) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If there is not 28 VDC at pin A4 of DM27321AC, then continue.
- (3) Do a check for 28 VDC from terminal VA01 of terminal block TB4151 in the EE bay (STA 150, WL 202, and BL L009) to structure ground (WDM 27-41-11).
- (4) If there is 28 VDC at terminal VA01 of terminal block TB4151, then do these steps:
 - (a) Open this circuit breaker and attach safety tag on the PSA-C. M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-C	STAB TRIM

- (b) Remove the center stab auto shutdown relay, K27007 (WDM 27-41-11).

NOTE: This relay is on the top of the AEO160 disconnect panel, which is above the forward access door, 112AL.
- (c) Do a wiring check between these contacts of connector DK27007 and terminal block TB4151 (WDM 27-41-11):

DK27007	TB4151
pin X1	term VA01

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the center stab auto shutdown relay, K27007.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Open this circuit breaker and attach safety tag on the PSA-C. M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-C	STAB TRIM

EFFECTIVITY
ARO ALL

27-41 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 295
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	6	CBB6-C	ELEV FEEL (C)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Do a wiring check between these contacts of connector DK27007 and connector DM27321AC at the E2-5 shelf (WDM 27-41-11):

DK27007

pin X2

DM27321AC

pin A4

- (g) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the center stab auto shutdown relay, K27007.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (h) If you do not find a problem with the wiring, then continue.
- (i) Re-install the center stab auto shutdown relay, K27007.

EFFECTIVITY
ARO ALL

27-41 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 296
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (j) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (k) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (l) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- (5) If there is not 28 VDC at terminal VA01 of block TB4151, then continue.
- (6) Do a check for 28 VDC from terminal VB03 of terminal block TB4151 to structure ground (WDM 27-41-11).
- (7) If there is 28 VDC at terminal VB03 of block TB4151, then do these steps:
 - (a) Open this circuit breaker and attach safety tag on the PSA-C. M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-C	STAB TRIM

- (b) Remove the stabilizer trim cutoff panel, P10-1, from the P10 pilot's control stand (it is necessary to disconnect connector D113J from the P10-1 panel).
- (c) Do a continuity check between pins 2 and 3 of connector D113P (WDM 27-41-11).
- (d) If there is not continuity between pins 2 and 3 of D113P, then do these steps:
 - 1) Replace the center stab trim cutout switch, S27055.
These are the tasks:
Stabilizer Cutout Switches Removal, AMM TASK 27-41-04-000-801,
Stabilizer Cutout Switches Installation, AMM TASK 27-41-04-400-801.
 - 2) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU

EFFECTIVITY
ARO ALL

27-41 TASK 829

D633W103-ARO

Page 297
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If there is continuity between pins 2 and 3 of D113P, then continue.
- (f) Do a wiring check between these contacts of connector D113J at the P10-1 module and terminal block TB4151 (WDM 27-41-11):

D113J	TB4151
pin 3	term VA01
pin 2	term VB03

- (g) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the stabilizer trim cutoff panel, P10-1.
 - 3) Re-install the ACE-C, M27321, on the E2-5 shelf.
 - 4) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (8) If there is not 28 VDC at terminal VB03 of block TB4151, then continue.
- (9) Do a check for 28 VDC from terminal VB61 of terminal block TB2501 to structure ground (WDM 27-41-11).
- (10) If there is 28 VDC at terminal VB61 of block TB2501, then do these steps:
 - (a) Do a wiring check between these contacts of terminal block TB2501 at the E2-5 shelf and terminal block TB4151 (WDM 27-41-11):

EFFECTIVITY
ARO ALL

27-41 TASK 829

D633W103-ARO

Page 298
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

TB2501

term VB61

TB4151

term VB03

- (b) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM

- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (11) If there is not 28 VDC at terminal VB61 of block TB2501, then do these steps:
- (a) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these contacts of connector DM24301AD at the E2-6 shelf and terminal block TB2501 at the E2-5 shelf (WDM 27-41-11):

DM24301AD

pin 17

TB5201

term VB61

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-install PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If you do not find a problem with the wiring, then continue.
- (12) Do this check of the ground wiring:
- (a) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.

EFFECTIVITY
ARO ALL

27-41 TASK 829

D633W103-ARO

Page 298.1
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Do a wiring check between these pins of connector DM27321AB at the E2-5 shelf and connector DM24301AD at the E2-6 shelf (WDM 27-41-11):

DM27321AB	DM24301AD
pin B8	pin 18

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Make sure that these circuit breakers are closed on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (13) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

830. Center Stabilizer Auto Shutdown Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10009.

B. Possible Causes

- (1) Stabilizer Trim Control Module (STCM) Shutoff Valve, V006
- (2) Center Stabilizer Auto Shutdown Relay, K27007

EFFECTIVITY
ARO ALL

27-41 TASKS 829-830

D633W103-ARO

Page 298.2
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Wiring

C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Do this check of the stabilizer's response to the control switches:
 - (a) Pressurize the center hydraulic system.
 - (b) Make sure that the left and right hydraulic systems are not pressurized.
 - (c) Set the PRIMARY FLIGHT COMPUTERS switch on the P5 overhead panel to DISC.
 - (d) Set the STAB C switch on the P10 pilots' control stand to CUTOUT.
 - (e) Look for movement of the stabilizer during the subsequent two steps.
 - 1) Push and hold the STAB TRIM switches on either control wheel to the NOSE UP position for 5 seconds.
 - 2) Push and hold the STAB TRIM switches on either control wheel to the NOSE DN position for 5 seconds.
 - (f) Release the pressure in the center hydraulic system.
 - (g) Set the STAB C switch on the P10 pilots' control stand to NORM.
- (2) If the stabilizer did not move up or down when you operated the switches, then do these steps:
 - (a) Remove the center stab auto shutdown relay, K27007 (WDM 27-41-11).
 - (b) Do a check for 28V DC from pins X1, A2, and B2 of connector DK27007 to structure ground (WDM 27-41-11).
 - (c) If there is not 28V DC at pins X1, A2, or B2 of DK27007, then do these steps:
 - 1) Repair the applicable wiring between these pins of connector DK27007 at the center stab auto shutdown relay, K27007 and terminal block TB4151 in the EE bay (STA 150, WL 202, and BL L009) (WDM 27-41-11):

DK27007	TB4151
pin A2	term VA01
pin X1	term VA01
pin B2	term VB03

- 2) Disconnect connector DM27321AC and do a wiring check between the following pins:

DK27007	TB4151
pin B1	term VA03

EFFECTIVITY
ARO ALL

27-41 TASK 830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.3
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DK27007

pin X2

DM27321AC

pin A4

- 3) Repair wires as necessary.
- 4) Reconnect connector DM27321AC.
- 5) Re-install the center stab auto shutdown relay, K27007.
- 6) Do the Repair Confirmation at the end of the task.
- (d) If there is 28V DC at pins X1, A2, and B2 of DK27007, then continue.
- (e) Install a new center stab auto shutdown relay, K27007.
- (f) Do the Repair Confirmation at the end of the task.
- (3) If the stabilizer moved up or down when you operated the switches, then do these steps:
 - (a) Disconnect connector DM27313A from the center stabilizer trim control module (STCM), M27313.
 - (b) Do a wiring check between these contacts of connector DM27313A at the center STCM and terminal block TB4151 in the EE bay (STA 150, WL 202, and BL L009) (WDM 27-41-11):

DM27313A

pin 3

TB4151

term VA03

- (c) Do a continuity check from pin 1 of connector DM27313A to structure ground (WDM 27-41-11).
- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27313A.
 - 3) Do the Repair Confirmation at the end of the task.
- (e) If you do not find a problem with the wiring, then do these steps:
 - 1) Do these tasks to replace the shutoff valve, V006, on the center STCM, M27313:
 - a) STCM Shutoff Valve Removal, AMM TASK 27-41-10-000-801
 - b) STCM Shutoff Valve Installation, AMM TASK 27-41-10-400-801
 - 2) Re-connect connector DM27313A.
 - 3) Do the Repair Confirmation at the end of the task.

E. Repair Confirmation

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Actuator Confidence.
 - (a) If the maintenance message shows on the ground test display, then continue the Fault Isolation Procedure at the subsequent step.
 - (b) If the maintenance message does not show on the ground test display, you corrected the problem.

————— **END OF TASK** —————

831. STCM (Center) Hydraulic Brake Pressure Switch Fault - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10013.

EFFECTIVITY
ARO ALL

27-41 TASKS 830-831

D633W103-ARO

Page 298.4
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Description

- (1) The Center Stabilizer Trim Control Module Hydraulic Brake Pressure Switch is inoperative.

C. Possible Causes

- (1) Center STCM Brake Pressure Switch, S1
- (2) Center Stabilizer Trim Control Module, M27313
- (3) Center ACE, M27321
- (4) Wiring
- (5) Center Stabilizer Hydraulic Motor

D. Related Data

- (1) WDM 27-41-11

E. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this task for the related Stabilizer Hydraulic Motor: Stabilizer Mechanical Trim Rate Test (Center Hydraulic System), AMM TASK 27-41-00-700-813.

NOTE: Poor performing Stabilizer Hydraulic Motors have resulted in setting Brake Pressure Switch faults. This test verifies proper operation of the related Stabilizer Hydraulic Motor.

- (3) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the test stopped before it was completed (the test would not complete and must be aborted), then, do this task: Horizontal Stabilizer Position Module and Travel Limiter Adjustment, AMM TASK 27-48-00-820-801.
 - 1) Do the Stabilizer System Test again.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent problem.

F. Fault Isolation Procedure

- (1) Replace the Brake Pressure Switch, S1, on the Center Stabilizer Trim Control Module (STCM-C), M27313. These are the tasks:
 - STCM Brake Pressure Switch Removal, AMM TASK 27-41-09-000-801,
 - STCM Brake Pressure Switch Installation, AMM TASK 27-41-09-400-801.
 - (a) Do the Repair Confirmation procedure at the end of this task.
- (2) Do these steps to make sure that the Brake Pressure Switch operates correctly when operated from the Pitch Trim Switches or the Alternate Pitch Trim Levers using the Center Hydraulic System.
 - (a) Do this task: Supply Electrical Power, AMM TASK 24-22-00-860-805.
 - (b) Remove the hydraulic power from the Right Hydraulic System. (AMM TASK 29-11-00-860-808).

EFFECTIVITY
ARO ALL

27-41 TASK 831

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.5
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL



WARNING

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(c) For the Center Hydraulic System only, do one of the following tasks:

- 1) Center Hydraulic System Pressurization with an Air-Driven Pump (ADP), AMM TASK 29-11-00-860-805
- 2) Main Hydraulic System Pressurization with a Portable Hydraulic Cart, AMM TASK 29-11-00-860-802
- 3) Main Hydraulic System Pressurization with an Alternating Current Motor Pump, AMM TASK 29-11-00-860-803.

NOTE: You must use both center Alternating Current Motor Pumps to have enough flow.

(d) Monitor page 3 of the maintenance pages for the Flight Controls on the Multi-Functional Display (MFD) (AMM TASK 31-61-00-800-804).

- 1) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	NO

(e) Push the two Pitch Trim Switches on the captain's Control Wheel up and hold it for approximately 5 seconds.

- 1) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	YES	NO

(f) Release the Pitch Trim Switches.

- 1) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	NO

(g) Push the two Pitch Trim Switches on the captain's Control Wheel down and hold it for approximately 5 seconds.

- 1) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

EFFECTIVITY
ARO ALL

27-41 TASK 831

D633W103-ARO

Page 298.6
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	YES	NO

(h) Release the Pitch Trim Switches.

1) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	NO

(i) Do these steps with the two ALTN PITCH TRIM levers together.

1) Pull the levers fully aft and hold them for approximately 5 seconds.

a) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	YES	NO

2) Release the ALTN PITCH TRIM levers.

a) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	NO

3) Push the levers fully forward and hold them for approximately 5 seconds.

a) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	YES	NO

4) Release the ALTN PITCH TRIM levers.

a) Make sure these indications show.

NOTE: Ignore the other indications on maintenance page 3.

	ACE			
	L1	L2	C	R
STCM BRK RELEASE PRESS	--	--	NO	NO

EFFECTIVITY
ARO ALL

27-41 TASK 831

D633W103-ARO

Page 298.7
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (j) If any of the indications on maintenance page 3 does not show as indicated above, then replace the Center Stabilizer Trim Control Module, M27313. These are the tasks:
- Stabilizer Trim Control Modules (STCM) Removal, AMM TASK 27-41-07-000-801
 - Stabilizer Trim Control Modules (STCM) Installation, AMM TASK 27-41-07-400-801.
- 1) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
- (k) If all indications on the maintenance page 3 show as indicated above, then continue.
- (3) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do the Repair Confirmation procedure at the end of this task.
- (5) Do this check of the wiring:
- (a) Open these circuit breakers and attach safety tags on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27313D from the STCM-C, M27313.
- (d) Do a wiring check between these pins of connector DM27313E at the STCM-C, M27313, and connector DM27321AC at the E2-5 shelf (WDM 27-41-11):

DM27313E

pin 1 pin B6
pin 2 pin A6

DM27321AC

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27313E.
 - 3) Re-install the ACE-C, M27321. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-41 TASK 831

D633W103-ARO

Page 298.8
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do the Repair Confirmation procedure at the end of this task.
- (f) If you do not find a problem with the wiring, then replace the Center Stabilizer Hydraulic Motor. These are the tasks:
 - Stabilizer Hydraulic Motor Removal, AMM TASK 27-41-11-000-801
 - Stabilizer Hydraulic Motor Installation, AMM TASK 27-41-11-400-801
- 1) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
 - (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

832. STCM-C Trim Rate Solenoid Valve Command Problems from ACE-L2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10015.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the solenoid valve, V5, on the center stabilizer trim control module (STCM-C), M27313.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,

STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.

NOTE: This solenoid valve controls the trim rate function.

EFFECTIVITY
ARO ALL

27-41 TASKS 831-832

D633W103-ARO

Page 298.9
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Exchange the ACE for M27121. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Do this check of the power wiring:
- (a) Disconnect connector DM27313D from the STCM-C.
 - (b) Do a check for 28V DC from pin 2 of connector DM27313D to structure ground (WDM 27-41-12).
 - (c) If there is not 28V DC at pin 2 of connector DM27313D, then do these steps:
 - 1) Re-connect connector DM27313D.
 - 2) Repair the wiring between these pins of connector DM27313D at the STCM-C, M23213, and connector DM24101AD at the E1-6 shelf (WDM 27-41-12):

DMM27213D	DM24101AD
pin 2	pin 17

- 3) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
- (d) If there is 28 VDC at pin 2 of connector DM27313D, then continue.
- (5) Do this check of the command wiring:
- (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6.

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-41 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.10
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (c) Do a wiring check between these pins of connector DM27313D at the STCM-C, M27313, and connector DM27121AC at the E1-5 shelf (WDM 27-41-12):

DMM27313D	DM27121AC
pin 1	pin A4

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27313D.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6.

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Reconnect connector DM27313D.
- (6) Do this check of the ground wiring:
- (a) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (b) Do a wiring check between these pins of connector DM27121AB at the E1-5 shelf and connector M24101AD at the E1-6 shelf (WDM 27-41-14):

DM27122AB	DM24101AD
pin B8	pin 18

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-41 TASK 832

D633W103-ARO

Page 298.11
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 4) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6.

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (7) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.

————— **END OF TASK** —————

833. Stabilizer Trim Control Module (Right) Trim Up Arm Solenoid Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10018.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-41 TASKS 832-833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.12
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the solenoid valve, V4, on the right stabilizer trim control module (STCM), M27213. These are the tasks:

- STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
- STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801

NOTE: This solenoid valve controls the trim up function.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check for electrical power to the solenoid valve:
- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R

- (d) Do a check for 28 VDC between pin A2 (+) of connector DM27122AC on the ACE-L2 and pin B8 (-) of connector DM27122AB on the ACE-L2 (WDM 27-41-14).
- (e) If there is 28 VDC between pin A2 of DM27122AC and pin B8 of DM27122AB, then do these steps:
- 1) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R

- 2) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 3) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR

EFFECTIVITY
ARO ALL

27-41 TASK 833

D633W103-ARO

Page 298.13
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If there is not 28 VDC between pin A2 of DM27121AC and pin B8 of DM27121AB, then continue.
- (3) Do this check of the wiring to the solenoid:
 - (a) Disconnect connector D11013P from the P110 left power management panel.
 - (b) Measure the resistance between pin 11 of connector D11013P at the P110 panel pin A2 of connector DM27122AC at the E1-1 (WDM 27-41-14).

NOTE: The solenoid valve has a resistance of approximately 70 ohms.
 - (c) If the resistance between pin 11 of D11013P and pin A2 of DM27122AC is not 50-100 ohms, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector D11013P.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the resistance between pin 11 of D11013P and pin A2 of DM27122AC is 50-100 ohms, then continue.
- (4) Do a check for continuity from pin A2 of connector DM27122AC to structure ground (WDM 27-41-14).
 - (a) If there is continuity from pin A2 of DM27122AC to ground, then do these steps:
 - 1) Repair the wiring (WDM 27-41-12).
 - 2) Re-connect connector D11013P.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-41 TASK 833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.14
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- 4) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (b) If there is not continuity from pin A2 of DM27122AC to ground, then continue:
- (5) Do a wiring check between these contacts of connector DM27122AB (for ACE-L2) and connector D11013P (for P110 panel):

DM27122AB	D11013P
pin B8	pin 12

- (a) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector D11013P.
 - 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	24	C27612	STAB TRIM ARM-R

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

834. STCM-C Trim Up Solenoid Valve Command Problems from ACE-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10019.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-41 TASKS 833-834

D633W103-ARO

Page 298.15
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) If MM 27-10020 is also set, check the operation of the STCM Motor Operated Shutoff Valves (MOSOVs). Do this task: Stabilizer Cutout Test, AMM TASK 27-41-00-700-811

C. Fault Isolation Procedure

- (1) Replace the solenoid valve, V2, on the center stabilizer trim control module (STCM-C), M27313. These are the tasks:

- STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
- STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801

NOTE: This solenoid valve controls the trim up function.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the center stabilizer position module, M27030. These are the tasks:
- Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801
 - Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the power wiring:
- (a) Disconnect connector DM27313C from the STCM-C, M27313.
- (b) Do a check for 28 VDC from pin 8 of connector DM27313C at the STCM-C, M27313, to structure ground (WDM 27-41-11).
- (c) If there is not 28V DC at pin 8 of connector DM27313C, then do these steps:
- 1) Remove the center power supply assembly (PSA-R), M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27233C at the STCM-C, M27313C, and connector DM24301AD at the E2-6 shelf (WDM 27-41-11):

EFFECTIVITY
ARO ALL

27-41 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.16
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27313C

pin 8

DM24301AD

pin 17

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27313C.
 - c) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27313C.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If there is 28V DC at pin 2 of connector DM27313C, then continue.
- (6) Do this check of the wiring from the position module to the STCM-C:
 - (a) Disconnect connector DM27030 from the position module, M27030.
 - (b) Do a wiring check between these pins of connector DM27030 at the position module and connector DM27313C at the STCM-C (WDM 27-41-11):

DM27030

pin 9

DM27313C

pin 5

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27030.
 - 3) Re-connect connector DM27313C.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-connect connector DM27313C.
- (7) Do this check of the command wiring:

EFFECTIVITY
ARO ALL

27-41 TASK 834

D633W103-ARO

Page 298.17
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (a) Open these circuit breakers and attach safety tags on the PSA-C, M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27030 at the position module, M27030 (WDM 27-41-11):

DM27321AC	DM27030
pin A2	pin 10

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27030.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-C, M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27030.
- (8) Do this check of the ground wiring:
 - (a) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.

EFFECTIVITY
ARO ALL

27-41 TASK 834

D633W103-ARO

Page 298.18
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) Do a wiring check between these pins of connector DM27321AB at the E2-5 shelf and connector DM24301AD at the E2-6 shelf (WDM 27-41-11):

DM27321AB	DM24301AD
pin B8	pin 18

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Make sure that these circuit breakers are closed on the PSA-C, M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (9) Install a new PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

835. STCM-C Trim Down Solenoid Valve Command Problems from ACE-L2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10021.

EFFECTIVITY
ARO ALL

27-41 TASKS 834-835

D633W103-ARO

Page 298.19
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the solenoid valve, V3, on the center stabilizer trim control module (STCM-C), M27313.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,

STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.

NOTE: This solenoid valve controls the trim down function.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,

Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the power wiring:
 - (a) Disconnect connector DM27313B from the STCM-C.
 - (b) Do a check for 28V DC from pin 2 of connector DM27313D to structure ground (WDM 27-41-12).
 - (c) If there is not 28V DC at pin 2 of connector DM27313D, then do these steps:
 - 1) Repair the wiring between these pins of connector DM27213D at the STCM-R, M23213, and connector DM24101AD at the E1-6 shelf (WDM 27-41-12):

DM27313D

pin 2

DM24101AD

pin 17

EFFECTIVITY
ARO ALL

27-41 TASK 835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.20
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If there is 28 VDC at pin 2 of connector DM27313B, then continue.
- (5) Do this check of the command wiring:
 - (a) Open these circuit breakers and attach safety tags on the left power supply assembly (PSA-L), M24101, on the E1-6.

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27313B at STCM-C, M27313 and connector DM27121AC at the E1-5 shelf (WDM 27-41-12):

DM27313D

pin 1 pin A4

DM27121AC

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27313B.
 - 3) Re-install ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6.

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-41 TASK 835

D633W103-ARO

Page 298.21
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (e) If you do not find a problem with the wiring, then continue.
- (f) Reconnect connector DM27313B.
- (6) Do this check of the ground wiring:
 - (a) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27121AB at the E1-5 shelf and connector DM24101AD at the E1-6 shelf (WDM 27-41-12):

DM27121AB	DM24101AD
pin B8	pin 18

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-install the PSA-L, M27101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Make sure that these circuit breakers are closed on the left power supply assembly (PSA-L), M24101, on the E1-6.

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (7) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-41 TASK 835

D633W103-ARO

Page 298.22
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

836. STCM-C Trim Down Solenoid Valve Command Problems from ACE-C - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10023.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the solenoid valve, V1, on the center stabilizer trim control module (STCM-C), M27313.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,

STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.

NOTE: This solenoid valve controls the trim down function.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27321. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,

Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the center stabilizer position module, M27030.

These are the tasks:

Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801,

Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

EFFECTIVITY
ARO ALL

27-41 TASK 836

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.23
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (5) Do this check of the power wiring:
- (a) Disconnect connector DM27313C from the STCM-C, M27313.
 - (b) Do a check for 28 VDC from pin 2 of connector DM27313C at the STCM-C, M27313, to structure ground (WDM 27-41-11).
 - (c) If there is not 28V DC at pin 2 of connector DM27313C, then do these steps:
 - 1) Remove the center power supply assembly (PSA-C), M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DM27313C at the STCM-C, M27313C, and connector DM24301AD at the E2-6 shelf (WDM 27-41-11):

DM27313C	DM24301AD
pin 2	pin 17

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27313C.
 - c) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If you do not find a problem with the wiring, then do these steps:
 - a) Install a new PSA-C, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - b) Re-connect connector DM27313C.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If there is 28V DC at pin 2 of connector DM27213C, then continue.
- (6) Do this check of the wiring from the position module to the STCM-C:
- (a) Disconnect connector DM27030 from the position module, M27030.
 - (b) Do a wiring check between these pins of connector DM27030 at the position module and connector DM27313C at the STCM-C (WDM 27-41-11):

DM27030	DM27313C
pin 6	pin 1

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27030.

EFFECTIVITY
ARO ALL

27-41 TASK 836

D633W103-ARO

Page 298.24
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- 3) Re-connect connector DM27313C.
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-connect connector DM27313C.
- (7) Do this check of the command wiring:
 - (a) Open these circuit breakers and attach safety tags on the PSA-C, M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the ACE-C, M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27030 at the position module, M27030 (WDM 27-41-11):

DM27221AC	DM27031
pin B4	pin 7

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27030.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove the safety tags and close these circuit breakers on the PSA-C, M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

EFFECTIVITY
ARO ALL

27-41 TASK 836

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.25
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-connect connector DM27030.
- (8) Do this check of the ground wiring:
 - (a) Remove the PSA-C, M24301. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM27321AB at the E2-5 shelf and connector DM24301AD at the E2-6 shelf (WDM 27-41-11):

DM27221AB

pin B8

DM24201AD

pin 18

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Make sure that these circuit breakers are closed on the PSA-C, M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (9) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-41 TASK 836

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.26
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

837. Stabilizer Position Module (Center) Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11004.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the center stabilizer position module, M27030. To adjust it, do this task: Horizontal Stabilizer Position Module and Travel Limiter Adjustment, AMM TASK 27-48-00-820-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the MAT shows ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
 - 2) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the PSA-C, M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27030 from the center stabilizer position module.
- (d) Do a wiring check between these contacts of connector DM27321AC (for ACE-C) and connector DM27030 (at the stabilizer position module) (WDM 27-41-11):

DM27321AC	DM27030
pin C1	pin 4
pin C2	pin 1

- (e) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-41 TASK 837

D633W103-ARO

Page 298.27
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-connect connector DM27030 to the stabilizer position module.
- 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the PSA-C, M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
 - g) Re-connect connector DM27030 to the stabilizer position module.
- (3) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - a) Make sure that these circuit breakers are closed on the PSA-C, M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the center stabilizer position module, M27030.

These are the tasks:

Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801,

Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801.

EFFECTIVITY
ARO ALL

27-41 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.28
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

838. Stabilizer Position Module (Right) Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11005.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Adjust the right stabilizer position module, M27031. To adjust it, do this task: Horizontal Stabilizer Position Module and Travel Limiter Adjustment, AMM TASK 27-48-00-820-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) Do this check of the feedback wiring:
 - (a) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27031 from the right stabilizer position module.
- (d) Do a wiring check between these contacts of connector DM27221AC (for ACE-R) and connector DM27031 (at the stabilizer position module) (WDM 27-41-13):

EFFECTIVITY
ARO ALL

27-41 TASKS 837-838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.29
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27221AC

pin C1 pin 4
pin C2 pin 1

DM27031

- (e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27031 to the stabilizer position module.
- 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27031 to the stabilizer position module.
- (3) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Make sure that these circuit breakers are closed on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-41 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.30
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the right stabilizer position module, M27031.

These are the tasks:

Stabilizer Position Module - Removal, AMM TASK 27-48-01-000-801,

Stabilizer Position Module - Installation, AMM TASK 27-48-01-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

839. Pitch Trim Switches (Left) Nose Down Switches Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12401.

B. Initial Evaluation

- (1) Push the two pitch trim switches on the captain's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.

NOTE: If you hold the switches up for less than five seconds, the maintenance message will stay latched.

- (a) Release the pitch trim switches.
- (2) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

NOTE: This fault can occur if a person moves only one of the two pitch trim switches on the captain's control wheel.

- (3) If the MAT shows LATCHED or ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Operate the two pitch trim switches on the captain's control wheel and make sure they both return to the center position.

- (a) If the switches do not return to the center position, then do these steps:

- 1) Replace the pitch trim switches, S27039.

These are the tasks:

Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,

Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.

- 2) Push the two pitch trim switches on the captain's control wheel down. Hold them down for a minimum of five seconds.
- 3) Release the pitch trim switches.
- 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (b) If the switches do return to the center position, then continue.
- (2) Do this check of the pitch trim switch circuits.
 - (a) Look at page 3 of the maintenance pages for the flight controls on the MFD.

EFFECTIVITY
ARO ALL

27-41 TASKS 838-839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.31
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Make sure the CAPT PITCH TRIM ARM indication for ACE-L1 shows NO. If the indication does not show NO, then the pitch trim arm circuit has a problem.
- 2) Make sure the CAPT PITCH TRIM CTRL indication for ACE-C shows NO. If the indication does not show NO, then the pitch trim control circuit has a problem.
- (b) Push the two pitch trim switches on the captain's control wheel up (airplane nose down).
- (c) Look at page 3 of the maintenance pages for the flight controls on the MFD.
 - 1) Make sure the CAPT PITCH TRIM ARM indication for ACE L1 shows DOWN. If the indication does not show DOWN, then the pitch trim arm circuit has a problem.
 - 2) Make sure the CAPT PITCH TRIM CTRL indication for ACE C shows DOWN. If the indication does not show DOWN, then the pitch trim control circuit has a problem.
- (d) Release the pitch trim switches.
- (3) If the pitch trim arm circuit has a problem, then do these steps:
 - (a) Replace the left 1 actuator control electronics (ACE-L1), M27121, at the E1-5 shelf.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

 - 1) Push the two pitch trim switches on the captain's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
 - (b) Replace the pitch trim switches, S27039.

These are the tasks:

Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,
Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.

 - 1) Push the two pitch trim switches on the captain's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
 - (c) Repair the wiring between the pitch trim switch and these pins of connector DM27121AC (the connector for the ACE-L1) (WDM 27-41-12):

NOTE: The colors specified in this table are for the wires that connect to the pitch trim switch wires at the center of the control wheel.

NOTE: Disconnect only one wire at a time so you cannot connect the wrong wires together.

Switch Wire	DM27121AC
red	pin K15
blue	pin J14
yellow	pin J15

EFFECTIVITY
ARO ALL

27-41 TASK 839

D633W103-ARO

Page 298.32
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Push the two pitch trim switches on the captain's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (4) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) If the pitch trim control circuit has a problem, then do these steps:
- (a) Replace the ACE recommended by the previous step.
These are the tasks:
Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 1) Push the two pitch trim switches on the captain's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
 - (b) Replace the pitch trim switches, S27039.
These are the tasks:
Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,
Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.
 - 1) Push the two pitch trim switches on the captain's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
 - (c) Repair the wiring between the pitch trim switch and these pins of connector DM27321AC (the connector for the ACE-C) (WDM 27-41-11):

NOTE: The colors specified in this table are for the wires that connect to the pitch trim switch wires at the center of the control wheel.

NOTE: Disconnect only one wire at a time so you cannot connect the wrong wires together.

Switch Wire	DM27321AC
green	pin K15
black	pin J14
violet	pin J15

- 1) Push the two pitch trim switches on the captain's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
- 2) Release the pitch trim switches.

EFFECTIVITY
ARO ALL

27-41 TASK 839

D633W103-ARO

Page 298.33
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

———— **END OF TASK** ————

840. Pitch Trim Switches (Right) Nose Up Switches Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12402.

B. Initial Evaluation

- (1) Push the two pitch trim switches on the first officer's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.

NOTE: If you hold the switches down for less than five seconds, the maintenance message will stay latched.

- (a) Release the pitch trim switches.
- (2) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

NOTE: This fault can occur if a person moves only one of the two pitch trim switches on the first officer's control wheel.

- (3) If the MAT shows LATCHED or ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Operate the two pitch trim switches on the first officer's control wheel and make sure they both return to the center position.
 - (a) If the switches do not return to the center position, then do these steps:
 - 1) Replace the pitch trim switches, S27044.
These are the tasks:
Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,
Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.
 - 2) Push the two pitch trim switches on the first officer's control wheel up. Hold them up for a minimum of five seconds.
 - 3) Release the pitch trim switches.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - (b) If the switches do return to the center position, then continue.
- (2) Do this check of the pitch trim switch circuits.
 - (a) Look at page 3 of the maintenance pages for the flight controls on the MFD.
 - 1) Make sure the F/O PITCH TRIM ARM indication for ACE-L2 shows NO. If the indication does not show NO, then the pitch trim arm circuit has a problem.
 - 2) Make sure the F/O PITCH TRIM CTRL indication for ACE-R shows NO. If the indication does not show NO, then the pitch trim control circuit has a problem.
 - (b) Push the two pitch trim switches on the first officer's control wheel down (airplane nose up).
 - (c) Look at page 3 of the maintenance pages for the flight controls on the MFD.

EFFECTIVITY
ARO ALL

27-41 TASKS 839-840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.34
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Make sure the F/O PITCH TRIM ARM indication for ACE L2 shows UP. If the indication does not show UP, then the pitch trim arm circuit has a problem.
- 2) Make sure the F/O PITCH TRIM CTRL indication for ACE R shows UP. If the indication does not show UP, then the pitch trim control circuit has a problem.
- (d) Release the pitch trim switches.
- (3) If the pitch trim arm circuit has a problem, then do these steps:
 - (a) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (b) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 1) Push the two pitch trim switches on the first officer's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
- (c) Replace the pitch trim switches, S27044.

These are the tasks:

Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,
Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.

 - 1) Push the two pitch trim switches on the first officer's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.

- (d) Repair the wiring between the pitch trim switch and these pins of connector DM27122AC (the connector for the ACE-L2) (WDM 27-41-14):

NOTE: The colors specified in this table are for the wires that connect to the pitch trim switch wires at the center of the control wheel.

NOTE: Disconnect only one wire at a time so you cannot connect the wrong wires together.

Switch Wire	DM27122AC
red	pin K15
blue	pin J14
yellow	pin J15

- 1) Push the two pitch trim switches on the first officer's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.
- 2) Release the pitch trim switches.

EFFECTIVITY
ARO ALL

27-41 TASK 840

D633W103-ARO

Page 298.35
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (4) If the pitch trim control circuit has a problem, then do these steps:
 - (a) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - (b) Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

 - 1) Push the two pitch trim switches on the first officer's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
 - (c) Replace the pitch trim switches, S27044.

These are the tasks:

Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,
Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.

 - 1) Push the two pitch trim switches on the first officer's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
 - (d) Repair the wiring between the pitch trim switch and these pins of connector DM27221AC (the connector for the ACE-R) (WDM 27-41-13):

NOTE: The colors specified in this table are for the wires that connect to the pitch trim switch wires at the center of the control wheel.

NOTE: Disconnect only one wire at a time so you cannot connect the wrong wires together.

Switch Wire	DM27221AC
green	pin K15
black	pin J14
violet	pin J15

- 1) Push the two pitch trim switches on the first officer's control wheel down (airplane nose up). Hold them down for a minimum of five seconds.
- 2) Release the pitch trim switches.
- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-41 TASK 840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.36
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

841. Pitch Trim Switches (Right) Nose Down Switches Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12403.

B. Initial Evaluation

- (1) Push the two pitch trim switches on the first officer's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
NOTE: If you hold the switches up for less than five seconds, the maintenance message will stay latched.
 - (a) Release the pitch trim switches.
- (2) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.
NOTE: This fault can occur if a person moves only one of the two pitch trim switches on the first officer's control wheel.
- (3) If the MAT shows LATCHED or ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Operate the two pitch trim switches on the first officer's control wheel and make sure they both return to the center position.
 - (a) If the switches do not return to the center position, then do these steps:
 - 1) Replace the pitch trim switches, S27044.
These are the tasks:
Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,
Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.
 - 2) Push the two pitch trim switches on the first officer's control wheel down. Hold them down for a minimum of five seconds.
 - 3) Release the pitch trim switches.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - (b) If the switches do return to the center position, then continue.
- (2) Do this check of the pitch trim switch circuits.
 - (a) Look at page 3 of the maintenance pages for the flight controls on the MFD.
 - 1) Make sure the F/O PITCH TRIM ARM indication for ACE-L2 shows NO. If the indication does not show NO, then the pitch trim arm circuit has a problem.
 - 2) Make sure the F/O PITCH TRIM CTRL indication for ACE-R shows NO. If the indication does not show NO, then the pitch trim control circuit has a problem.
 - (b) Push the two pitch trim switches on the first officer's control wheel up (airplane nose down).
 - (c) Look at page 3 of the maintenance pages for the flight controls on the MFD.
 - 1) Make sure the F/O PITCH TRIM ARM indication for ACE L2 shows DOWN. If the indication does not show DOWN, then the pitch trim arm circuit has a problem.
 - 2) Make sure the F/O PITCH TRIM CTRL indication for ACE R shows DOWN. If the indication does not show DOWN, then the pitch trim control circuit has a problem.

EFFECTIVITY
ARO ALL

27-41 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.37
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) Release the pitch trim switches.
- (3) If the pitch trim arm circuit has a problem, then do these steps:
- (a) Exchange the ACE for M27122. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (b) Replace the ACE recommended by the previous step.
- These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 1) Push the two pitch trim switches on the first officer's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
- (c) Replace the pitch trim switches, S27044.
- These are the tasks:
- Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,
Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.
- 1) Push the two pitch trim switches on the first officer's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
- (d) Repair the wiring between the pitch trim switch and these pins of connector DM27122AC (the connector for the ACE-L2) (WDM 27-41-14):
- NOTE: The colors specified in this table are for the wires that connect to the pitch trim switch wires at the center of the control wheel.
- NOTE: Disconnect only one wire at a time so you cannot connect the wrong wires together.
- | Switch Wire | DM27122AC |
|------------------|-----------|
| red | pin K15 |
| blue | pin J14 |
| yellow | pin J15 |
- 1) Push the two pitch trim switches on the first officer's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (4) If the pitch trim control circuit has a problem, then do these steps:
- (a) Exchange the ACE for M27221. This is the task:

EFFECTIVITY
ARO ALL

27-41 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.38
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (b) Replace the ACE recommended by the previous step.
These are the tasks:
Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 1) Push the two pitch trim switches on the first officer's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
- (c) Replace the pitch trim switches, S27044.
These are the tasks:
Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,
Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.
 - 1) Push the two pitch trim switches on the first officer's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
 - 2) Release the pitch trim switches.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - 4) If the MAT shows LATCHED for the maintenance message, then continue.
- (d) Repair the wiring between the pitch trim switch and these pins of connector DM27221AC (the connector for the ACE-R) (WDM 27-41-13):

NOTE: The colors specified in this table are for the wires that connect to the pitch trim switch wires at the center of the control wheel.

NOTE: Disconnect only one wire at a time so you cannot connect the wrong wires together.

Switch Wire	DM27221AC
green	pin K15
black	pin J14
violet	pin J15

- 1) Push the two pitch trim switches on the first officer's control wheel up (airplane nose down). Hold them up for a minimum of five seconds.
- 2) Release the pitch trim switches.
- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

————— **END OF TASK** —————

842. Pitch Trim Switches (Right) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12405.

EFFECTIVITY
ARO ALL

27-41 TASKS 841-842

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure.
- (2) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Do this task: Pitch Trim Switch Test, AMM TASK 27-41-00-700-803.
 - (b) If there were problems when you did the steps of the test, then do the Fault Isolation Procedure below.
 - (c) If there were no problems when you did the steps of the test, then no maintenance action is necessary. The captain or first officer made an operational error of the airplane during the flight.

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the right actuator control electronics (ACE-R) recommended by the previous step.
These are the tasks:
Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Do this task: Pitch Trim Switch Test, AMM TASK 27-41-00-700-803.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (c) If the MAT shows LATCHED for the maintenance message, then continue.
- (3) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (4) Replace the ACE recommended by the previous step.
These are the tasks:
Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Do this task: Pitch Trim Switch Test, AMM TASK 27-41-00-700-803.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (c) If the MAT shows LATCHED for the maintenance message, then continue.
- (5) Replace the pitch trim switches, S27044.
These are the tasks:
Pitch Trim Switches Removal, AMM TASK 27-41-01-000-801,
Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.
 - (a) Do this task: Pitch Trim Switch Test, AMM TASK 27-41-00-700-803.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (c) If the MAT shows LATCHED for the maintenance message, then continue.
- (6) Do this check of the wiring from the switches to the ACE-L2:
 - (a) Disconnect connector D2112J from the pitch trim switches, S27044.

EFFECTIVITY
ARO ALL

27-41 TASK 842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.40
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (b) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (c) Remove the ACE-L2, M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (d) Do a wiring check between these pins of connector D2112J at the right control wheel and connector DM27122AC at the E1-1 shelf (WDM 27-41-14):

D2112J	DM27122AC
pin 1	pin K15
pin 3	pin J15

- (e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector D2112J.
- 3) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this task: Pitch Trim Switch Test, AMM TASK 27-41-00-700-803.
 - 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (7) Do this check of wiring from the switches to the ACE-R:
- (a) Re-connect connector D2112J.
 - (b) Re-install the ACE-L2, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-41 TASK 842

D633W103-ARO

Page 298.41
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (d) Disconnect connector D2111J from the pitch trim switches, S27044.
- (e) Open these circuit breakers and attach safety tags on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf.

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (f) Remove the ACE-R, M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (g) Do a wiring check between these pins of connector D2111J at the right control wheel and connector DM27221AC at the E5-2 shelf (WDM 27-41-13):

D2111J	DM27221AC
pin 1	pin K15
pin 3	pin J15

- (h) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the pitch trim switches, S27044. To install it, do this task: Pitch Trim Switches Installation, AMM TASK 27-41-01-400-801.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Remove safety tags and close these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf.

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM

EFFECTIVITY
ARO ALL

27-41 TASK 842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.42
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this task: Pitch Trim Switch Test, AMM TASK 27-41-00-700-803.
- 6) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

843. Stabilizer Trim Control Module (Center) Arm Solenoid Valve Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15013.

B. Initial Evaluation

- (1) Close this circuit breaker on the center power supply assembly (PSA-L), M24301:
 - (a) B2, STAB TRIM
 - (b) If the circuit breaker opens when you try to close it, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Open.
- (2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the maintenance message shows on the ground test display, then do this check:
 - 1) If the circuit breaker is open, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Open.
 - 2) If the circuit breaker stayed closed, then do this procedure below: Fault Isolation Procedure - Circuit Breaker Closed.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure - Circuit Breaker Open

- (1) Do this check of the power wiring:
 - (a) Remove the left power supply assembly (PSA-L), M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Disconnect connectors DM27313B and DM27313D from the center stabilizer trim control module (STCM-C), M27313.
 - (c) Do a wiring check between these pins of connectors DM27313B and DM27313D at the STCM-C and connector D11013P at the P110 panel (WDM 27-41-12):

DM27313B	DM24101AD
pin 2	pin 12

DM27313D	DM24101AD
pin 2	pin 12

DM27313B	DM27313B
pin 8	pin 4

- (d) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-41 TASKS 842-843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.43
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-connect connectors DM27313B and DM27313D to the STCM-C.
- 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Measure the resistance between pin 2 and pin 1 of connector DM27313B (the connector for the trim arm solenoid valves, V3 and V4) on the STCM-C, M27313 (WDM 27-41-12).
 - (a) If the resistance is not 50-100 ohms, then do these steps:
 - 1) Replace the trim down arm solenoid valve, V3, on the STCM-C, M27313.

These are the tasks:
STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Brake Pressure Switch Removal, AMM TASK 27-41-09-000-801.
 - 2) Re-connect connectors DM27313B and DM27313D to the STCM-C.
 - 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (b) If the resistance is 50-100 ohms, then continue.
- (3) Measure the resistance between pin 5 and pin 8 of connector DM27313B (the connector for the trim arm solenoid valves, V3 and V4) on the STCM-C, M27313 (WDM 27-41-12).
 - (a) If the resistance is not 50-100 ohms, then do these steps:
 - 1) Replace the trim up arm solenoid valve, V4, on the STCM-C, M27313.

These are the tasks:
STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Brake Pressure Switch Removal, AMM TASK 27-41-09-000-801.
 - 2) Re-connect connectors DM27313B and DM27313D to the STCM-R.
 - 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (b) If the resistance is 50-100 ohms, then continue.
- (4) Measure the resistance between pin 2 and pin 1 of connector DM27313D (the connector for the trim rate solenoid valve, V5) on the STCM-C, M27313 (WDM 27-41-12).
 - (a) If the resistance is not 50-100 ohms, then do these steps:

EFFECTIVITY
ARO ALL

27-41 TASK 843

D633W103-ARO

Page 298.44
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Replace the trim rate solenoid valve, V3, on the STCM-C, M27313.
These are the tasks:
STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Brake Pressure Switch Removal, AMM TASK 27-41-09-000-801.
- 2) Re-connect connectors DM27313B and DM27313D to the STCM-C.
- 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the resistance is 50-100 ohms, then continue.
- (5) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Re-connect connectors DM27313B and DM27313D to the STCM-C.
 - (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

D. Fault Isolation Procedure - Circuit Breaker Closed

- (1) Replace the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

844. Stabilizer Trim Control Module (Center) Control Solenoid Valve Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15015.

B. Initial Evaluation

- (1) If the STAB C cutout switch (on the control stand in the flight compartment) is not in the NORM position, then set it to the NORM position.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-41 TASKS 843-844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.45
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

NOTE: You must do the Initial Evaluation above before you do this Fault Isolation Procedure.

- (1) Open this circuit breaker and attach safety tag on the center power supply assembly (PSA-C), M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- (2) Remove the PSA-R, M24201, from the E5-1 shelf. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (3) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (4) Do a check for continuity (a short) from pin 17 of connector DM24301AD (the connector for the PSA) to structure ground (WDM 27-41-11).
- (5) If there is not continuity from pin 17 of connector DM24301AD to ground, then do these steps:
 - (a) Install a new PSA-R, M24201. To remove it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 1) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 2) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 3) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (b) Replace the stabilizer auto shutdown relay, K27007 (WDM 27-41-11).

NOTE: This relay is on the top of the AEO160 disconnect panel, which is above the forward access door, 112AL.

- 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-41 TASK 844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.46
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Disconnect connector DM27313C (the connector for the trim control solenoid valves, V1 and V3) from the center stabilizer trim control module (STCM-C), M27313.
- (d) Measure the resistance between pin 2 (+) and pin 1 (-) of connector DM27313C on the STCM-C, M27313 (WDM 27-41-11).

NOTE: Connect the positive (+) connector on your meter to pin 2 and the negative (-) connector to pin 1. If you make the opposite connections with the meter, you will get an incorrect indication on the meter. It will show too low of a resistance.

- 1) If the resistance between pin 2 and pin 1 of connector DM27313C is not 50-100 ohms, then do these steps:
 - a) Replace the trim down control solenoid valve, V1, on the STCM-C, M27313. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
 - b) Re-connect connector DM27313C to the STCM-C.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the resistance between pin 2 and pin 1 of connector DM27313C is 50-100 ohms, then continue.
- (e) Measure the resistance between pin 8 (+) and pin 5 (-) of connector DM27313C on the STCM-C, M27313 (WDM 27-41-11).

NOTE: Connect the positive (+) connector on your meter to pin 8 and the negative (-) connector to pin 5. If you make the opposite connections with the meter, you will get an incorrect indication on the meter. It will show too low of a resistance.

- 1) If the resistance between pin 8 and pin 5 of connector DM27313C is not 50-100 ohms, then do these steps:
 - a) Replace the trim up control solenoid valve, V2, on the STCM-C, M27313. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
 - b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - c) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the resistance between pin 8 and pin 5 of connector DM27313C is 50-100 ohms, then continue.
- 3) Do a check for continuity (a short) from these pins of connector DM27313C (the airplane wiring connector, not the connector on the STCM).
 - a) Pin 1 to pin 2, 4, 6, or 8.
 - b) Pin 5 to pin 2, 4, 6, or 8.
- 4) If there is continuity from pin 1 or 5 to one of the other pins, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector DM27313C to the STCM.

EFFECTIVITY
ARO ALL

27-41 TASK 844

D633W103-ARO

Page 298.47
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (6) If there is continuity from pin 17 of connector DM24301AD (the connector for the PSA) to ground, then continue.
 - (7) Disconnect connector DM27313C (the connector for the trim control solenoid valves, V1 and V3) from the center stabilizer trim control module (STCM-C), M27313.
 - (8) Do a check for continuity from pin 17 of connector DM24301AD (the connector for the PSA) to structure ground (WDM 27-41-11).
 - (a) If there is not continuity from pin 17 of connector DM24301AD to ground, then do these steps:
 - 1) Measure the resistance between pin 2 (+) and pin 1 (-) of connector DM27313C on the STCM-C, M27313 (WDM 27-41-11).

NOTE: Connect the positive (+) connector on your meter to pin 2 and the negative (-) connector to pin 1. If you make the opposite connections with the meter, you will get an incorrect indication on the meter. It will show too low of a resistance.
 - 2) If the resistance between pin 2 and pin 1 of connector DM27313C is not 50-100 ohms, then do these steps:
 - a) Replace the trim down control solenoid valve, V1, on the STCM-C, M27313. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
 - b) Re-connect connector DM27313C to the STCM-C.
 - c) Re-install the PSA-C, M24301.
 - d) Remove the safety tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the resistance between pin 2 and pin 1 of connector DM27313C is 50-100 ohms, then continue.
 - 4) Measure the resistance between pin 8 (+) and pin 5 (-) of connector DM27313C on the STCM-C, M27313 (WDM 27-41-11).

NOTE: Connect the positive (+) connector on your meter to pin 8 and the negative (-) connector to pin 5. If you make the opposite connections with the meter, you will get an incorrect indication on the meter. It will show too low of a resistance.
 - 5) If the resistance between pin 5 and pin 8 of connector DM27313C is not 50-100 ohms, then do these steps:

EFFECTIVITY
ARO ALL

27-41 TASK 844

D633W103-ARO

Page 298.48
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) Replace the trim up control solenoid valve, V2, on the STCM-C, M27313. These are the tasks:
 - STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801
 - STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801
- b) Re-connect connector DM27313C to the STCM-C.
- c) Re-install the PSA-C, M24301.
- d) Remove the safety tag and close this circuit breaker on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 6) If the resistance between pin 5 and pin 8 of connector DM27313C is 50-100 ohms, then continue.
 - 7) Repair the wiring at connector DM27313C (WDM 27-41-11).
 - a) Re-connect connector DM27213C to the STCM-R.
 - b) Re-install the PSA-C, M24301.
 - c) Make sure that this circuit breaker is closed on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (b) If there is continuity from pin 17 of connector DM24201AD to ground, then continue.
 - (9) Disconnect connector DM27313A (the connector for the shutoff valve, V6) from the right stabilizer trim control module (STCM-R), M27313.
 - (10) Do a check for continuity from pin 17 of connector DM24301AD (the connector for the PSA) to structure ground (WDM 27-41-11).
 - (a) If there is not continuity from pin 17 of connector DM24201AD to ground, then do these steps:
 - 1) Replace the center STCM shutoff valve, valve V6 of M27313. These are the tasks:
 - STCM Shutoff Valve Removal, AMM TASK 27-41-10-000-801
 - STCM Shutoff Valve Installation, AMM TASK 27-41-10-400-801
 - 2) Re-connect connectors DM27213A and DM27313C to the STCM-C.
 - 3) Re-install the PSA-C, M24301. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.

EFFECTIVITY
ARO ALL

27-41 TASK 844

D633W103-ARO

Page 298.49
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Make sure that this circuit breaker is closed on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	CBD8-C	PFC BAT INTLK

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- If the maintenance message does not show on the ground test display, you corrected the fault.
 - If there is continuity from pin 17 of connector DM24201AD to ground, then continue.
- (11) Replace the stabilizer auto shutdown relay, K27007 (WDM 27-41-11).
- NOTE: This relay is on the top of the AEO160 disconnect panel, which is above the forward access door, 112AL.
- Do a check for continuity from pin 17 of connector DM24301AD (the connector for the PSA) to structure ground (WDM 27-41-11).
 - If there is not continuity from pin 17 of connector DM24301AD to ground, then do these steps:
 - Re-connect connectors DM27213A and DM27313C to the STCM-C.
 - Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If there is continuity from pin 17 of connector DM24201AD to ground, then continue.
- (12) Disconnect the wires from the center stabilizer cutout switch, S27055. For access to the wires, do this task: Stabilizer Cutout Switches Removal, AMM TASK 27-41-04-000-801.
- (13) Do a check for continuity from pin 17 of connector DM24301AD (the connector for the PSA) to structure ground (WDM 27-41-11).
- If there is not continuity from pin 17 of connector DM24301AD to ground, then do these steps:
 - Install a new center stabilizer cutout switch, S27055. To install it, do this task: Stabilizer Cutout Switches Installation, AMM TASK 27-41-04-400-801.
 - Re-connect connectors DM27313A and DM27313C to the STCM-R.
 - Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - If the maintenance message does not show on the ground test display, you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.
 - Repair this wiring between the stabilizer cutout switch (S27055), the STCM shutoff valve (V6 on M27313), and the stabilizer auto shutdown relay (K27007) (WDM 27-41-11):

EFFECTIVITY
ARO ALL

27-41 TASK 844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.50
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

S27055	DK27007	DM27313A
term 1 wire	pin B1	pin 3
term 3 wire	pin A2	--
term 3 wire	pin X1	--

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (b) If there is continuity from pin 17 of connector DM24301AD to ground, then continue.
- (14) Repair this wiring between the PSA-C (M24301), the STCM-C (M27313), the stabilizer auto shutdown relay (K27007), and the stabilizer cutout switch (S27055) (WDM 27-41-11).

DM24301AD		DK27313C		DK27007		S27055
pin 17	----	pin 2	----	pin B2	----	term 2 wire

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

845. Uncommanded Pitch Trim Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10006.

B. Initial Evaluation

NOTE: This maintenance message will occur only if a fault exists in both the center and right pitch trim channels.

- (1) Look for these maintenance messages on the Extended Maintenance, Present Leg Faults display on the MAT: 27-10017, 27-10018, 27-10019, 27-10020, 27-10021, 27-10022, 27-10023 and 27-10024.
- (a) If one or more of these messages shows, then do the Fault Isolation Procedure below.
- (b) If none of these messages shows, then continue.
- (2) If the MAT shows ACTIVE for maintenance message 27-10006, then do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message 27-10006, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
- (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for these maintenance messages on the Extended Maintenance, Present Leg Faults display on the MAT: 27-10017, 27-10018, 27-10019, 27-10020, 27-10021, 27-10022, 27-10023 and 27-10024.

EFFECTIVITY
ARO ALL

27-41 TASKS 844-845

D633W103-ARO

Page 298.51
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) If maintenance message 27-10017 shows in Present Leg Faults, then do these steps:
- Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - Replace the trim-up control solenoid valve, V002, on the center stabilizer trim control module, M27313.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.
- (3) If maintenance message 27-10018 shows in Present Leg Faults, then do these steps:
- Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - Replace the trim-up control solenoid valve, V002, on the right stabilizer trim control module, M27213.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.
- (4) If maintenance message 27-10019 shows in Present Leg Faults, then do these steps:
- Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - Replace the trim-down control solenoid valve, V001, on the center stabilizer trim control module, M27313.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,

EFFECTIVITY
ARO ALL

27-41 TASK 845

D633W103-ARO

Page 298.52
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.

- (5) If maintenance message 27-10020 shows in Present Leg Faults, then do these steps:
- Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - Replace the trim-down control solenoid valve, V001, on the right stabilizer trim control module, M27213.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.
- (6) If maintenance message 27-10021 shows in Present Leg Faults, then do these steps:
- Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - Replace the trim-up arm solenoid valve, V004, on the center stabilizer trim control module, M27313.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.
- (7) If maintenance message 27-10022 shows in Present Leg Faults, then do these steps:
- Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - Replace the trim-up arm solenoid valve, V004, on the right stabilizer trim control module, M27213.

These are the tasks:

EFFECTIVITY
ARO ALL

27-41 TASK 845

D633W103-ARO

Page 298.53
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.

- (8) If maintenance message 27-10023 shows in Present Leg Faults, then do these steps:
- Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - Replace the trim-down arm solenoid valve, V003, on the center stabilizer trim control module, M27313.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.
- (9) If maintenance message 27-10024 shows in Present Leg Faults, then do these steps:
- Find the message in the FIM Maintenance Message Index and do the specified fault isolation task.
 - Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
 - Replace the ACE recommended by the previous step.

These are the tasks:

Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - Replace the trim-down arm solenoid valve, V003, on the right stabilizer trim control module, M27213.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.
- (10) If two of the specified maintenance messages showed in Present Leg Faults and you did the steps given above for each one, you corrected the fault.
- (11) If none of the specified maintenance messages showed in Present Leg Faults, then do these steps:
- Make sure these electrical connectors are connected (WDM 27-41-15) (WDM 27-41-16):

NOTE: This message will occur if too many of the signals from the switches for the alternate pitch trim levers are not received by the PFCs when the levers are moved. A minimum of two of the following connectors (one for the switches on the arm lever, and one for the switches on the control lever) must be disconnected to cause this fault.

EFFECTIVITY
ARO ALL

27-41 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.54
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) D4992 and D4996 (at the AEO181 disconnect panel)
NOTE: The AEO181 disconnect panel is in the area above the wheel well for the nose landing gear (below the flight compartment floor). It is approximately 10 inches aft of the forward edge of the wheel well and 4 inches left of the center.
 - 2) D5629 and D5711 (at the P105 panel)
NOTE: The P105 panel is in the area left of the wheel well for the nose landing gear. It is the first panel forward of the main equipment center, on the side of the wheel well.
 - 3) D4053 and D5685 (at the P205 panel)
NOTE: The P205 panel is in the area right of the wheel well for the nose landing gear. It is the first panel forward of the main equipment center, on the side of the wheel well.
 - 4) D5704 (at the E2-3 shelf in the main equipment center).
- (b) If you find electrical connectors that are not connected, then do these steps:
- 1) Re-connect the electrical connectors.
 - 2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If all the electrical connectors are connected, then continue.
- (d) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (e) Replace the ACE recommended by the previous step.
- These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (f) Exchange the ACE for M27122. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (g) Replace the ACE recommended by the previous step.
- These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (h) Exchange the ACE for M27321. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (i) Replace the ACE recommended by the previous step.
- These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801,
Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (j) Replace these solenoid valves on the center stabilizer trim control module, M27313.
- These are the tasks:

EFFECTIVITY
ARO ALL

27-41 TASK 845

D633W103-ARO

Page 298.55
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.

- 1) Trim-up control, V002
- 2) Trim-down control, V001
- 3) Trim-up arm, V004
- 4) Trim-down arm, V003.

- (k) Replace these solenoid valves on the right stabilizer trim control module, M27213.

These are the tasks:

STCM Solenoid Valve Removal, AMM TASK 27-41-08-000-801,
STCM Solenoid Valve Installation, AMM TASK 27-41-08-400-801.

- 1) Trim-up control, V002
- 2) Trim-down control, V001
- 3) Trim-up arm, V004
- 4) Trim-down arm, V003.

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

- a) If the maintenance message does not show on the ground test display, you corrected the fault.

- (12) If one of the specified maintenance messages showed in Present Leg Faults and you did the step given above, then continue.

- (13) Replace the right stabilizer trim control module, M27213.

These are the tasks:

Stabilizer Trim Control Modules (STCM) Removal, AMM TASK 27-41-07-000-801,
Stabilizer Trim Control Modules (STCM) Installation, AMM TASK 27-41-07-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

- (14) Replace the center stabilizer trim control module, M27313.

These are the tasks:

Stabilizer Trim Control Modules (STCM) Removal, AMM TASK 27-41-07-000-801,
Stabilizer Trim Control Modules (STCM) Installation, AMM TASK 27-41-07-400-801.

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-41 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.56
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

846. Pitch Trim Channel (Center) Does Not Operate Because of Low Hydraulic Pressure - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10025.

B. Initial Evaluation

NOTE: This maintenance message can occur if you move the pitch trim switches or the alternate pitch trim levers when center hydraulic pressure is low (or off). Because this maintenance message can occur when the hydraulic system is intentionally off, it is possible that there are no problems with the airplane.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to find hydraulic system problems:
 - (a) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS, 29 Hydraulic System page on the MAT.
 - (b) If you find maintenance messages related to the center hydraulic system, then do these steps.
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - 3) After you have corrected the maintenance messages for the hydraulic system, do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If there are no maintenance messages for the center hydraulic system, then continue.
- (2) Replace the center-left hydraulic interface module (HYDIM-CL) card, A4, in the left systems card file (LSCF), P85. These are the tasks:
 - Hydraulic Interface Module (HYDIM) Cards Removal, AMM TASK 29-11-50-000-801
 - Hydraulic Interface Module (HYDIM) Cards Installation, AMM TASK 29-11-50-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the center-right hydraulic interface module (HYDIM-CR) card, A4, in the right systems card file (RSCF), P84. These are the tasks:
 - Hydraulic Interface Module (HYDIM) Cards Removal, AMM TASK 29-11-50-000-801

EFFECTIVITY
ARO ALL

27-41 TASK 846

D633W103-ARO

Page 298.57
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Hydraulic Interface Module (HYDIM) Cards Installation, AMM TASK 29-11-50-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

847. Pitch Trim Channel (Right) Does Not Operate Because of Low Hydraulic Pressure - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10026.

B. Initial Evaluation

NOTE: This maintenance message can occur if you move the pitch trim switches or the alternate pitch trim levers when right hydraulic pressure is low (or off). Because this maintenance message can occur when the hydraulic system is intentionally off, it is possible that there are no problems with the airplane.

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to find hydraulic system problems:
 - (a) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS, 29 Hydraulic System page on the MAT.
 - (b) If you find maintenance messages related to the right hydraulic system, then do these steps.
 - 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - 3) After you have corrected the maintenance messages for the hydraulic system, do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (c) If there are no maintenance messages for the right hydraulic system, then continue.
- (2) Replace the right hydraulic interface module (HYDIM-R) card, A17, in the right systems card file (RSCF), P84. These are the tasks:
 - Hydraulic Interface Module (HYDIM) Cards Removal, AMM TASK 29-11-50-000-801
 - Hydraulic Interface Module (HYDIM) Cards Installation, AMM TASK 29-11-50-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Stabilizer System.

EFFECTIVITY
ARO ALL

27-41 TASKS 846-847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.58
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

848. Stabilizer Position Indicator (Right) Problems (Blank or No Light) - Fault Isolation

A. Initial Evaluation

NOTE: The stabilizer position indicator has a temperature sensor in it. If the temperature in the indicator is less than approximately -5° C (23° F), the light will not come on.

- (1) Open and then close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	10	C27634	STAB POS IND-R

NOTE: Cycling this circuit breaker resets the stabilizer trim indicator. The stabilizer trim indicator has a software problem that makes the light go off.

- (a) If the stabilizer position indicator operates correctly, then no repair is necessary.
 - (b) If the stabilizer position indicator does not operate correctly, then continue.
- (2) Look to see if the stabilizer position or greenband indication shows on the stabilizer position indicator.
 - (a) If the stabilizer position or greenband indication shows on the stabilizer position indicator, then do this procedure below: Fault Isolation Procedure - No Light.
 - (b) If the stabilizer position and greenband indications do not show on the stabilizer position indicator, then do this procedure below: Fault Isolation Procedure - Indicator Blank.

B. Fault Isolation Procedure - No Light

- (1) Replace the stabilizer position indicator, N27002. These are the tasks:
 - Stabilizer Position Indicator Removal, AMM TASK 27-48-02-000-801
 - Stabilizer Position Indicator Installation, AMM TASK 27-48-02-400-801

NOTE: The light in the stabilizer position indicator cannot be replaced.

- (a) If the stabilizer position indicator comes on, then you corrected the fault.

C. Fault Isolation Procedure - Indicator Blank

- (1) Do this task: Stabilizer Position Indicator Removal, AMM TASK 27-48-02-000-801.
- (2) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	10	C27634	STAB POS IND-R

- (3) Do a check for 28 VDC from pin 14 (+) to pin 15 (-) of connector DN27002 for the stabilizer position indicator (WDM 27-48-11).
- (4) If there is not 28 VDC between pin 14 and pin 15 (of DN27002), then do these steps:
 - (a) Do a voltage check from pin 14 (+) of connector DN27002 for the stabilizer position indicator to structure ground (WDM 27-48-11).
 - (b) If there is 28 VDC between pin 14 (of DN27002) and structure ground, then do these steps:

EFFECTIVITY
ARO ALL

27-41 TASKS 847-848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.59
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	10	C27634	STAB POS IND-R

- 2) Repair the wiring from pin 15 (of DN27002) to structure ground (WDM 27-48-11).
- 3) Re-install the stabilizer position indicator. To install it, do this task: Stabilizer Position Indicator Installation, AMM TASK 27-48-02-400-801.
- 4) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	10	C27634	STAB POS IND-R

- 5) If the stabilizer position indicator comes on, then you corrected the fault.
- (c) If there is not 28 VDC between pin 14 (of DN27002) and structure ground, then do these steps (WDM 27-48-11):

- 1) Do a voltage check from term 2 (+) to structure ground of this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	10	C27634	STAB POS IND-R

- 2) If there is not 28 VDC at term 2 of the circuit breaker, C27634, then do these steps (WDM 27-48-11):

- a) Replace this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	10	C27634	STAB POS IND-R

- b) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	10	C27634	STAB POS IND-R

- c) Re-install the stabilizer position indicator. To install it, do this task: Stabilizer Position Indicator Installation, AMM TASK 27-48-02-400-801.
- d) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	10	C27634	STAB POS IND-R

- e) If the stabilizer position indicator comes on, then you corrected the fault.
- 3) If there is 28 VDC at term 2 of the circuit breaker, C27634, then do these steps:

EFFECTIVITY
ARO ALL

27-41 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.60
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	10	C27634	STAB POS IND-R

- b) Repair the wiring between the circuit breaker and pin 14 of connector DN27002 (the connector for the stabilizer position indicator) (WDM 27-48-11).
- c) Re-install the stabilizer position indicator. To install it, do this task: Stabilizer Position Indicator Installation, AMM TASK 27-48-02-400-801.
- d) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	10	C27634	STAB POS IND-R

- e) If the stabilizer position indicator comes on, then you corrected the fault.

- (5) If there is 28 VDC between pin 14 and pin 15, then do these steps:

- (a) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	10	C27634	STAB POS IND-R

- (b) Install a new stabilizer position indicator. To install it: do this task: Stabilizer Position Indicator Installation, AMM TASK 27-48-02-400-801.
- (c) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	10	C27634	STAB POS IND-R

- (d) If the stabilizer position indicator comes on, then you corrected the fault.
- (e) If the stabilizer position indicator does not come on, then continue.

- (6) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS display for chapter 31 AIMS - right AIMS. For instructions about the EXISTING FAULTS display, do this task: How to Find Active or Latched Maintenance Messages in One ATA System, AMM TASK 45-10-00-740-818.

NOTE: The stabilizer position indicator will go blank if the signal it receives from AIMS is bad.

- (a) If one or more maintenance messages show on the EXISTING FAULT display, then do these steps:
- 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-41 TASK 848

D633W103-ARO

Page 298.61
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

849. ALTN PITCH TRIM Levers Do Not Align - Fault Isolation

A. Initial Evaluation

- (1) Pressurize the right and center hydraulic systems. To pressurize the right and center hydraulic systems, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (a) Move the ALTN PITCH TRIM levers to the NOSE UP then to the NOSE DOWN position.
 - (b) If the distance between the ends of the ALTN PITCH TRIM levers is more than 0.9 inches (23 millimeters), then do the Fault Isolation Procedure below.
 - (c) If the distance between the ends of the ALTN PITCH TRIM levers is less than or equal to 0.9 inches (23 millimeters), then there is no alternate pitch trim operational impact.

B. Fault Isolation Procedure

- (1) Adjust the stabilizer control cables. To adjust them, do this task: Stabilizer Control Cable Adjustment, AMM TASK 27-41-00-800-801.
 - (a) Move the ALTN PITCH TRIM levers to the NOSE UP then to the NOSE DOWN position.
 - (b) If the distance between the ends of the ALTN PITCH TRIM levers is more than 0.9 inches (23 millimeters), then continue with the Fault Isolation Procedure.
 - (c) If the distance between the ends of the ALTN PITCH TRIM levers is less than or equal to 0.9 inches (23 millimeters), then there is no alternate pitch trim operational impact.
- (2) Adjust the ALTN PITCH TRIM levers. To adjust them, do this task: Alternate Pitch Trim Lever Adjustment, AMM TASK 27-41-00-800-803.
 - (a) Move the ALTN PITCH TRIM levers to the NOSE UP then to the NOSE DOWN position.
 - (b) If the distance between the ends of the ALTN PITCH TRIM levers is less than or equal to 0.9 inches (23 millimeters), then there is no alternate pitch trim operational impact.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-41 TASK 849

D633W103-ARO

Page 298.62
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

801. Flap Primary Low Speed Solenoid Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20371.

B. Description

- (1) The Flaps Primary Low Speed Solenoid circuit is open.

C. Possible Causes

- (1) Flaps Primary Low Speed Solenoid, V3
- (2) Flap Primary Control Valve, V27004
- (3) Wiring
- (4) Flap/Slat Electronics Unit (FSEU) 1, M27001

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-51-15
- (2) SSM 27-51-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

EFFECTIVITY
ARO ALL

27-51 TASK 801

D633W103-ARO

Page 201
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



WARNING

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
(3) Do a wiring check of the Low Speed Solenoid as follows (WDM 27-51-15):

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004B from the Flap Primary Control Valve, V27004 in the Right Wheel Well.
(c) Do a Resistance check between pins 8 and 18 of connector DV27004B on the Flap Primary Control Valve, V27004 in the Right Wheel Well.
(d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then do these steps:

- 1) Replace the Low Speed Solenoid on the Flap Primary Control Valve, V27004.
These are the tasks:

- Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802
- Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802

- 2) Do a Resistance check between pins 8 and 18 of connector DV27004B on the Flap Primary Control Valve, V27004 again (WDM 27-51-15).

NOTE: This does a check of the internal wiring on the Flap Primary Control Valve, V27004.

- a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then replace the Flap Primary Control Valve, V27004. These are the tasks:

- Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
- Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801

EFFECTIVITY
ARO ALL

27-51 TASK 801

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 202
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- <1> Do the Repair Confirmation at the end of this task.
- b) If the Resistance is in the specified limits, then continue.
- (e) If the Resistance is in the specified limits, then continue.
- (4) Connect electrical connector DV27004B to the Flap Primary Control Valve, V27004, in the Right Wheel Well.
- (5) Do a check for 28V DC at FSEU 1 as follows:
- (a) Remove FSEU 1, M27001, from the E1-6 Shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (b) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (c) Do a check for 28V DC between pins F1 (+) on connector DM27001AC and structure ground (WDM 27-51-15).
- 1) If you do not find 28V DC at pin F1 of connector DM27001AC, then do these steps:
- a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- b) At the P310 Power Management Panel, disconnect electrical connector D31037P.
- c) In the Right Wheel Well, disconnect electrical connector DV27004B from the Flap Primary Control Valve, V27004.
- d) Do a wiring check from the FSEU-1 connector DM27001AC to the Power Management Panel P310 connector D31037P as follows (WDM 27-51-15):

E1-6 Shelf	R Wheel Well
DM27001AC	DV27004B
pin F1	pin 8

R Wheel Well	P310 Panel
DV27004B	D31037P
pin 18	pin 13

- <1> If you find a problem with the wiring, then do these steps:
- <a> Repair the wiring.
- Re-connect electrical connector DV27004B.
- <c> Re-connect electrical connector D31037P.
- <d> Re-install FSEU 1, M27001. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- <e> Do the Repair Confirmation at the end of this task.
- <2> If you do not find a problem with the wiring, continue.

EFFECTIVITY
ARO ALL

27-51 TASK 801

D633W103-ARO

Page 203
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If you find 28V DC at pin F1 of connector DM27001AC, continue.
- (d) Replace FSEU 1, M27001. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- 1) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 1 is IN CONTROL

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

802. Flap Primary System Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-20390, 27-20391, 27-20392.

B. Initial Evaluation

- (1) If the PRESENT LEG FAULTS Display on the MAT shows LATCHED for the maintenance message 27-20441 or 27-20442, then do these steps:
 - (a) If maintenance message 27-20441 shows LATCHED, do the Flap Secondary System Problems FSEU 1 - Fault Isolation, 27-51 TASK 807.
 - (b) If maintenance message 27-20442 shows LATCHED, do the Flap Secondary System Problems FSEU 2 - Fault Isolation, 27-52 TASK 807.
- (2) If the MAT shows maintenance messages 27-20390, 27-20391, 27-20392 as INACTIVE on the Ground but ACTIVE or LATCHED in the Air (including AHM, or PIREPs records), then look for INACTIVE maintenance message 27-20441 or 27-20442.
 - (a) If maintenance message 27-20441 shows INACTIVE on the MAT, do the Flap Secondary System Problems FSEU 1 - Fault Isolation, 27-51 TASK 807.
 - (b) If maintenance message 27-20442 shows INACTIVE on the MAT, do the Flap Secondary System Problems FSEU 2 - Fault Isolation, 27-52 TASK 807.
- (3) If the PRESENT LEG FAULTS Display on the MAT shows LATCHED for the maintenance message 27-20381 or 27-20382, then do these steps:

EFFECTIVITY
ARO ALL

27-51 TASKS 801-802

D633W103-ARO

Page 204
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Do the Fault Isolation Procedure - Solenoid Check below.
- (4) If the PRESENT LEG FAULTS Display on the MAT does not show LATCHED for the maintenance message 27-20381 or 27-20382, then do these steps:
- (a) Cycle the ALTN FLAPS ARM Switch on the Control Stand.

NOTE: This will cause the maintenance message to become INACTIVE.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (b) Pressurize the Center Hydraulic System. This is the task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (c) Use the Primary System to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- 1) If the MAT shows LATCHED for the maintenance message, then do the Fault Isolation Procedure - Hydraulics Check below.
 - 2) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure - Flaps Relay K27002 Check

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.
- (2) Replace the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-51 TASK 802

D633W103-ARO

Page 205
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

D. Fault Isolation Procedure - Solenoid Check

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.



MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a check of the Primary Extend solenoid on the flap primary control valve, V27004 in the right wheel well:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004B from the flap primary control valve, V27004.
- (c) Measure the resistance between these pairs of pins of the connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):
- 1) Pins 9 and 19, specified resistance 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids).
 - 2) Pins 11 and 15, specified resistance 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids).

EFFECTIVITY
ARO ALL

27-51 TASK 802

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 206
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a continuity check between pins 9, 11, 15 and 19 of the connector DV27004B on the flap primary control valve and structure ground.
- (e) If the resistance between the pins is not in the limit, or if there is continuity to ground, then do these steps:

- 1) Replace the Primary Extend solenoid on the flap primary control valve, V27004.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

- 2) Do a check of the resistance between pins 9 and 19, and pins 11 and 15 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-15).

NOTE: This does a check of the internal wiring on the primary control valve, V27004.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- b) If the resistance is in the limit, then continue.
- 3) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- 5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- 6) Use the primary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

EFFECTIVITY
ARO ALL

27-51 TASK 802

D633W103-ARO

Page 207
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 7) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 8) If there is continuity between the pins, or if the MAT shows LATCHED for the maintenance message, then continue.
- (4) Do a check of the Primary Retract solenoid on the flap primary control valve, V27004 in the right wheel well:

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004B from the flap primary control valve, V27004.
- (c) Measure the resistance between these pairs of pins of the connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):
- 1) Pins 2 and 17, specified resistance 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids).
 - 2) Pins 4 and 14, specified resistance 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids).
- (d) Do a continuity check between pins 2, 4, 14 and 17 of the connector DV27004B on the flap primary control valve and structure ground.
- (e) If the resistance between the pins is not in the limit, or if there is continuity to ground, then do these steps:
- 1) Replace the Primary Retract solenoid on the flap primary control valve, V27004.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
 - 2) Do a check of the resistance between pins 2 and 17, and pins 4 and 14 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-15).
NOTE: This does a check of the internal wiring on the primary control valve, V27004.
 - a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - b) If the resistance is in the limit, then continue.
 - 3) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.

EFFECTIVITY
ARO ALL

27-51 TASK 802

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 208
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- 5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- 6) Use the primary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 7) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- 8) If there is continuity between the pins, or if the MAT shows LATCHED for the maintenance message, then do the Fault Isolation Procedure - Hydraulics Check below.
- (5) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
- (6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1



OBEY THE REMOVAL PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (7) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

EFFECTIVITY
ARO ALL

27-51 TASK 802

D633W103-ARO

Page 209
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

E. Fault Isolation Procedure - Hydraulics Check

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Replace the flap hydraulic motor.

These are the tasks:

Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801,

Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.

- (2) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

- (b) If the MAT shows LATCHED with the maintenance message, then continue.

- (3) Replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- (4) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

803. Flap Primary Extend Solenoid Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20401.

B. Description

- (1) Flaps Primary Extend Solenoid circuit is open.

C. Possible Causes

- (1) Flaps Primary Extend Solenoid, V2
- (2) Flap Primary Control Valve, V27004
- (3) Wiring
- (4) FSEU 1, M27001

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-51 TASKS 802-803

D633W103-ARO

Page 210
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-51-15
- (2) SSM 27-51-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Extend Solenoid as follows (WDM 27-51-15):

EFFECTIVITY
ARO ALL

27-51 TASK 803

D633W103-ARO

Page 211
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004B from the Flap Primary Control Valve, V27004 in the Right Wheel Well.
- (c) Do a Resistance check between pins 9 and 19 of connector DV27004B on the Flap Primary Control Valve, V27004 in the Right Wheel Well.
- (d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then do these steps:
- 1) Replace the Extend Solenoid on the Flap Primary Control Valve, V27004. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802
 - 2) Do a Resistance check between pins 9 and 19 of connector DV27004B on the Flap Primary Control Valve, V27004 again (WDM 27-51-15).
- NOTE:** This does a check of the internal wiring on the Flap Primary Control Valve, V27004.
- a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then replace the Flap Primary Control Valve, V27004. These are the tasks:
 - Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801

<1> Do the Repair Confirmation at the end of this task.
 - b) If the Resistance is in the specified limits, then continue.

- (e) If the Resistance is in the specified limits, then continue.

- (4) Connect electrical connector DV27004B to the Flap Primary Control Valve, V27004, in the Right Wheel Well.

- (5) Do a check for 28V DC at FSEU 1 as follows:

- (a) Remove FSEU 1, M27001, from the E1-6 Shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (b) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (c) Do a check for 28V DC between pin G1 (+) on connector DM27001AC and structure ground (WDM 27-51-15).

- 1) If you do not find 28V DC at pin G1 of connector DM27001AC, then do these steps:

EFFECTIVITY
ARO ALL

27-51 TASK 803

D633W103-ARO

Page 212
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- b) At the P310 Power Management Panel, disconnect electrical connector D31037P.
- c) In the Right Wheel Well, disconnect electrical connector DV27004B from the Flap Primary Control Valve, V27004.
- d) Do a wiring check from the FSEU-1 connector DM27001AC to the Power Management Panel P310 connector D31037P as follows (WDM 27-51-15):

E1-6 Shelf	R Wheel Well
DM27001AC	DV27004B
pin G1	pin 9

R Wheel Well	P310 Panel
DV27004B	D31037P
pin 19	pin 13

<1> If you find a problem with the wiring, then do these steps:

- <a> Repair the wiring.
- Re-connect electrical connector DV27004B.
- <c> Reconnect electrical connector D31037P.
- <d> Re-install FSEU 1, M27001. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- <e> Do the Repair Confirmation at the end of this task.

<2> If you do not find a problem with the wiring, continue.

- 2) If you find 28V DC at pin G1 of connector DM27001AC, continue.

- (d) Replace FSEU 1, M27001. These are the tasks:

- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
- Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 1 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

EFFECTIVITY
ARO ALL

27-51 TASK 803

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 213
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Use the Primary System to extend the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

804. Flap Primary Retract Solenoid Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20411.

B. Description

- (1) The Flaps Primary Retract Solenoid circuit is open.

C. Possible Causes

- (1) Flaps Primary Retract Solenoid, V4
- (2) Flap Primary Control Valve, V27004
- (3) Wiring
- (4) FSEU 1, M27001

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-51-15
- (2) SSM 27-51-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.

EFFECTIVITY
ARO ALL

27-51 TASKS 803-804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 214
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Retract Solenoid as follows (WDM 27-51-15):
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004B from the Flap Primary Control Valve, V27004 in the Right Wheel Well.
- (c) Do a Resistance check between pins 2 and 17 of connector DV27004B on the Flap Primary Control Valve, V27004 in the Right Wheel Well.

EFFECTIVITY
ARO ALL

27-51 TASK 804

D633W103-ARO

Page 215
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then do these steps:
- 1) Replace the Retract Solenoid on the Flap Primary Control Valve, V27004. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802
 - 2) Do a Resistance check between pins 2 and 17 of connector DV27004B on the Flap Primary Control Valve, V27004 again (WDM 27-51-15).

NOTE: This does a check of the internal wiring on the Flap Primary Control Valve, V27004.

 - a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then replace the Flap Primary Control Valve, V27004. These are the tasks:
 - Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801

<1> Do the Repair Confirmation at the end of this task.
 - b) If the Resistance is in the specified limits, then continue.
- (e) If the Resistance is in the specified limits, continue.
- (4) Connect electrical connector DV27004B to the Flap Primary Control Valve, V27004, in the Right Wheel Well.
- (5) Do a check for 28V DC at FSEU 1 as follows:
- (a) Remove FSEU 1, M27001, from the E1-6 Shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
 - (b) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (c) Do a check for 28V DC between pin D1 (+) of connector DM27001AC and structure ground (WDM 27-51-15).
- 1) If you do not find 28V DC at pin D1 of connector DM27001AC, then do these steps:
 - a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- b) At the P310 Power Management Panel, disconnect electrical connector D31037P.
- c) In the Right Wheel Well, disconnect electrical connector DV27004B from the Flap Primary Control Valve, V27004.
- d) Do a wiring check from the FSEU-1 connector DM27001AC to the Power Management Panel P310 connector D31037P as follows (WDM 27-51-15):

EFFECTIVITY
ARO ALL

27-51 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 216
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

E1-6 Shelf
DM27001AC
pin D1

R Wheel Well
DV27004B
pin 2

R Wheel Well
DV27004B
pin 17

P310 Panel
D31037P
pin 13

- <1> If you find a problem with the wiring, then do these steps:
- <a> Repair the wiring.
 - Re-connect electrical connector DV27004B.
 - <c> Reconnect electrical connector D31037P.
 - <d> Re-install FSEU 1, M27001. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - <e> Do the Repair Confirmation at the end of this task.
- <2> If you do not find a problem with the wiring, continue.
- 2) If you find 28V DC at pin D1 of connector DM27001AC, continue.
- (d) Replace FSEU 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 1 is IN CONTROL
- NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-51 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 217
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

805. Flap Primary Shutoff Solenoid Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20421.

B. Description

- (1) The Flaps Primary Shutoff Solenoid circuit is open.

C. Possible Causes

- (1) Flaps Primary Shutoff Solenoid, V1
- (2) Flap Primary Control Valve, V27004
- (3) Wiring
- (4) FSEU 1, M27001

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-51-15
- (2) SSM 27-51-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the primary system to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

EFFECTIVITY
ARO ALL

27-51 TASK 805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 218
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



WARNING

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock pins are not installed on the Main and Nose Landing Gear, do this task:
Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
(3) Do a wiring check of the Shutoff Solenoid as follows:

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004A from the Flap Primary Control Valve, V27004 in the Right Wheel Well WDM 27-51-15.
(c) Do a Resistance check between pins 7 and 8 of connector DV27004A on the Flap Primary Control Valve, V27004 in the Right Wheel Well.
(d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 ohms (for the 883 Series Solenoids), then do these steps:
- 1) Replace the Shutoff Solenoid on the Flap Primary Control Valve, V27004. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802
 - 2) Do a Resistance check between pins 7 and 8 of connector DV27004A on the Flap Primary Control Valve, V27004 again (WDM 27-51-15).

NOTE: This does a check of the internal wiring on the Flap Primary Control Valve, V27004.

- a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then replace the Flap Primary Control Valve, V27004. These are the tasks:
- Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801

EFFECTIVITY
ARO ALL

27-51 TASK 805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 219
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- <1> Do the Repair Confirmation at the end of this task.
- b) If the Resistance is in the specified limits, then continue.
- (e) If the Resistance is in the specified limits, continue.
- (4) Connect electrical connector DV27004A to the Flap Primary Control Valve, V27004, in the Right Wheel Well.
- (5) Do a check for 28V DC at FSEU 1 as follows:
- (a) Remove FSEU 1, M27001, from the E1-6 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (b) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (c) Do a check for 28V DC between pin G5 (+) on connector DM27001AC and structure ground (WDM 27-51-15).
- 1) If you do not find 28V DC at pin G5 on connector DM27001AC, then do these steps:
- a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- b) At the P310 Power Management Panel, disconnect electrical connector D31037P.
- c) In the Right Wheel Well, disconnect electrical connector DV27004A from the Flap Primary Control Valve, V27004.
- d) Do a wiring check from the FSEU-1 connector DM27001AC to the Power Management Panel P310 connector D31037P as follows (WDM 27-51-15):

E1-6 Shelf	R Wheel Well
DM27001AC	DV27004A
pin G5	pin 7

R Wheel Well	P310 Panel
DV27004A	D31037P
pin 8	pin 13

- <1> If you find a problem with the wiring, then do these steps:
- <a> Repair the wiring.
- Re-connect electrical connector DV27004A.
- <c> Reconnect electrical connector D31037P.
- <d> Re-install FSEU 1, M27001. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- <e> Do the Repair Confirmation at the end of this task.
- <2> If you do not find a problem with the wiring, continue.

EFFECTIVITY
ARO ALL

27-51 TASK 805

D633W103-ARO

Page 220
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If you find 28V DC at pin G5 of connector DM27001AC, continue.
- (d) Replace FSEU 1, M27001. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



WARNING

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

806. Flap Uncommanded Motion Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20431.

B. General

- (1) You can also use this task to isolate the fault if the FLAPS PRIMARY FAIL (CAUTION) EICAS message is shown without a maintenance message.
 - (a) If there is no maintenance message, and you can not correct the fault, then do this task also: Flap Uncommanded Motion Problems FSEU 2 - Fault Isolation, 27-52 TASK 806.

C. Initial Evaluation

- (1) Make sure the position of the flap control lever agrees with the position of the flaps.
- (2) Make sure the ALTN FLAPS control switch is in the OFF position.
- (3) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

EFFECTIVITY
ARO ALL

27-51 TASKS 805-806

D633W103-ARO

Page 221
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: Use a single AC Motor Pump (ACMP) to supply power to the center system. This will cause the flaps to move more slowly if there is not an intermittent fault. If you use two ACMPs or an Air Driven Pump (ADP) the flaps will move further before the FSEUs stop them.



MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS. THE FLAPS CAN MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure - Uncommanded Motion below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then continue.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: Use an Air Driven Pump (ADP) to move the flaps. This will allow the flaps to move at their usual rate.

- (7) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (8) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

- (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure - Stops Out of Detent below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.
- (9) Do this ground test on the MAT for FSEU 1: Flap Primary Control Valve Test, AMM TASK 27-51-05-740-801.

EFFECTIVITY
ARO ALL

27-51 TASK 806

D633W103-ARO

Page 222
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

D. Fault Isolation Procedure - Uncommanded Motion

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (2) Replace the flap primary control valve, V27004. These are the tasks:
 - Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (4) Use the primary system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (5) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

E. Fault Isolation Procedure - Stops Out of Detent

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Low Speed solenoid on the flap primary control valve, V27004 in the right main wheel well:

EFFECTIVITY
ARO ALL

27-51 TASK 806

D633W103-ARO

Page 223
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (c) Do a check of the resistance between pins 8 and 18 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):
- (d) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
- 1) Replace the Low Speed solenoid on the flap primary control valve, V27004. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802
 - 2) Do a check of the resistance between pins 8 and 18 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-15).
- NOTE:** This does a check of the internal wiring on the primary control valve, V27004.
- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004. These are the tasks:
 - Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801
- (e) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-51 TASK 806

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 224
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (g) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (h) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
 - (i) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (j) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (4) Do this check of the adjustment of the flap position sensors:
- (a) Make sure the trailing edge flaps are in the retracted position.
 - (b) Look at the FLAPS POS L1, R1, L2 and R2 indications on the FLAP/SLAT maintenance page on EICAS.
 - (c) If one of the flap position indications is not less than 12.03, then replace the applicable flap position sensor. These are the tasks:
 - Flap Position Sensor Removal, AMM TASK 27-58-03-000-801
 - Flap Position Sensor Installation, AMM TASK 27-58-03-400-801
- NOTE: The flap position sensor for FLAP POS L1 and L2 are in the left wheel well. The flap position sensor for FLAP POS R1 and R2 are in the right wheel well.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (d) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (e) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- (f) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 806

D633W103-ARO

Page 225
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

807. Flap Secondary System Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20441.

B. Initial Evaluation

- (1) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (a) If the circuit breakers were not closed, use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breakers were closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do this check to see if the flap drive system is locked:

EFFECTIVITY
ARO ALL

27-51 TASKS 806-807

D633W103-ARO

Page 226
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Use the primary system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (b) If the flaps do not operate with the primary system, then use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802
- (c) If the flaps do not operate with the primary or the alternate system, then the flap drive system is locked.
- 1) Continue on to the next fault isolation step.
- (d) If the flaps operate with the primary system or the alternate system, then the flap drive system is not locked.
- 1) Continue with the inspection of the torque trip indicators in the subsequent fault isolation steps.
- (3) If the flap drive system is locked, then do these steps:



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (d) Disconnect the torque tubes inboard of the flap position sensor gearboxes.



CAUTION

DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 1200 POUND-INCHES TORQUE OR FASTER THAN 400 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.



CAUTION

DO NOT LET THE BALLSCREW NUTS HIT THE UPSTOPS OR DOWNSTOPS. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE POSITION SENSOR GEARBOX.

- (e) Use the manual drive on the flap position sensor gearboxes to extend and retract the flaps on each wing. To manually operate the flaps, do this task: Trailing Edge Flap System Manual Operation, AMM TASK 27-51-00-980-801.

EFFECTIVITY
ARO ALL

27-51 TASK 807

D633W103-ARO

Page 227
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) If you can extend and retract the flaps on each wing, do these steps:
- 1) Do this task: Flap Electric Motor Removal, AMM TASK 27-51-34-000-801.
 - 2) Use an T.E. flap torque tube coupling drive adapter, SPL-1704 to turn the flap power drive unit (PDU) in the extend and retract directions.
 - 3) If you can turn the PDU, install a new flap electric motor, B27002. To install it, do this task: Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
 - 4) If you cannot turn the PDU, do this task: Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801.
 - 5) Use an T.E. flap torque tube coupling drive adapter, SPL-1704 to turn the flap power drive unit (PDU) in the extend and retract directions.
 - 6) If you cannot turn the PDU, replace the flap power drive unit (PDU). These are the tasks:
 - Flap Power Drive Unit (PDU) Removal, AMM TASK 27-51-31-000-801
 - Flap Power Drive Unit (PDU) Installation, AMM TASK 27-51-31-400-801
 - 7) Try to turn the output shaft on the flap hydraulic motor.
 - 8) If you can turn the output shaft on the hydraulic motor, replace the flap primary control valve, V27004. These are the tasks:
 - Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801
 - 9) If you cannot turn the output shaft on the flap hydraulic motor, install a new flap hydraulic motor. To install it, do this task: Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
 - 10) If it is necessary, re-install the flap hydraulic motor. To install it, do this task: Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
 - 11) If it is necessary, re-install the flap electric motor. To install it, do this task: Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
- (g) If you cannot extend and retract the flaps on one of the wings, find where the flap drive system is locked:
- 1) Open the access panels on the applicable wing:
 - a) If the flap drive system on the left wing is locked, open the following panels:

<u>Number</u>	<u>Name/Location</u>
573DR	Flap Support Fairing No. 3 Panel
576CL	Flap Support Fairing No. 2 Panel
577DL	Flap Support Fairing No. 1 Panel
 - b) If the flap drive system on the right wing is locked, open the following panels:

<u>Number</u>	<u>Name/Location</u>
673DL	Flap Support Fairing No. 6 Panel
676CR	Flap Support Fairing No. 7 Panel
677DR	Flap Support Fairing No. 8 Panel
 - 2) Look at the torque trip indicators on the transmissions on the applicable wing.
 - 3) If the torque trip indicator shows tripped for a transmission, do these steps:
 - a) Disconnect the torque tubes from the applicable transmission.

EFFECTIVITY
ARO ALL

27-51 TASK 807

D633W103-ARO

Page 228
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) Try to turn the torque tube couplings on the applicable transmission.
- c) If you cannot turn the transmission, disconnect the ballscrew from the transmission.
- d) Try to turn the torque tube couplings on the transmission.
- e) If you cannot turn an inboard flap inboard transmission, replace the applicable transmission. These are the tasks:
 - Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801
 - Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801
- f) If you cannot turn an inboard flap outboard transmission, replace the applicable transmission. These are the tasks:
 - Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802
 - Inboard Flap Outboard Transmission Installation, AMM TASK 27-51-15-400-802
- g) If you cannot turn an outboard flap inboard transmission, replace the applicable transmission. These are the tasks:
 - Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801
 - Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801
- h) If you cannot turn an outboard flap outboard transmission, replace the applicable transmission. These are the tasks:
 - Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802
 - Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801
- i) Try to turn the ballscrew on the applicable transmission.
- j) If you cannot turn the ballscrew for the inboard flap inboard transmission, replace the applicable ballscrew. These are the tasks:
 - Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-801
 - Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-801
- k) If you cannot turn the ballscrew for the inboard flap outboard transmission, replace the applicable ballscrew. These are the tasks:
 - Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-802
 - Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-802
- l) If you cannot turn the ballscrew for the outboard flap inboard transmission, replace the applicable ballscrew. These are the tasks:
 - Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-802

EFFECTIVITY
ARO ALL

27-51 TASK 807

D633W103-ARO

Page 229
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-802
- m) If you cannot turn the ballscrew for the outboard flap outboard transmission, replace the applicable ballscrew. These are the tasks:
 - Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801
 - Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-801
- n) If it is necessary, connect the ballscrew to the transmission.
- o) Connect the torque tubes to the applicable transmission.
- p) Reset the torque trip indicator on the applicable transmission.
- 4) If none of the torque trip indicators show, or if you did not find a problem with a transmission or ballscrew, examine the other gearboxes for the flap drive system on the applicable wing:
 - a) Disconnect the torque tubes from the applicable gearbox.
 - b) If you cannot manually turn the applicable gearbox, replace the gearbox.
 - c) Connect the torque tubes to the applicable gearbox.
- 5) Close the access panels on the applicable wing:
 - a) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
573DR	Flap Support Fairing No. 3 Panel
576CL	Flap Support Fairing No. 2 Panel
577DL	Flap Support Fairing No. 1 Panel
 - b) Close these access panels:

<u>Number</u>	<u>Name/Location</u>
673DL	Flap Support Fairing No. 6 Panel
676CR	Flap Support Fairing No. 7 Panel
677DR	Flap Support Fairing No. 8 Panel
- (h) Connect the torque tubes to the flap position sensor gearboxes.
- (i) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (j) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (k) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

EFFECTIVITY
ARO ALL

27-51 TASK 807

D633W103-ARO

Page 230
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
- 2) If the maintenance message shows on the MAT, then continue.
- (4) If the flap drive system is not locked, do a visual check of the torque trip indicators on the flap transmissions.
- (5) If a torque trip indicator shows tripped, then do these steps on the applicable flap drive mechanism:
 - (a) Do a detailed visual inspection of the flap drive mechanism for misaligned, or damaged parts.
 - (b) Lubricate the applicable transmission, ballscrew and gimbal:
 - 1) For an inboard flap, inboard transmission, do this task: Inboard Flap Inboard Transmission, Ballscrew and Gimbal Lubrication, AMM TASK 12-21-09-640-802.
 - 2) For an inboard flap, outboard transmission, do this task: Inboard Flap Outboard Transmission, Ballscrew and Gimbal Lubrication, AMM TASK 12-21-09-640-807.
 - 3) For an outboard flap, inboard transmission, do this task: Outboard Flap Inboard Transmission, Ballscrew and Gimbal Lubrication, AMM TASK 12-21-09-640-810.
 - 4) For an outboard flap, outboard transmission, do this task: Outboard Flap Outboard Transmission, Ballscrew and Gimbal Lubrication, AMM TASK 12-21-09-640-804.
 - (c) Fill the applicable transmission with oil. To fill a transmission, do this task: Flap PDU and Electric Motor Servicing, AMM TASK 12-13-09-610-801.
 - (d) Reset the torque trip indicator on the applicable transmission.
 - (e) Use the primary system to retract and extend the flaps. To retract and extend them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
 - (f) Use the secondary system to retract and extend the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.
 - 1) If the flaps operate with the primary and secondary systems, and if the maintenance message does not show on the MAT, then you corrected the fault.
 - 2) If the flaps do not operate, or if the maintenance message shows on the MAT, then continue.
- (6) Use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- (7) If the flaps do not operate with the alternate system, then do a check of the electrical power to the flap electric motor, B27002:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-51 TASK 807



777-200/300 FAULT ISOLATION MANUAL

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (b) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (c) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
(d) Disconnect the electrical connector, DB27002 from the flap electric motor, B27002.
(e) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (f) Push the ALT FLAPS ARM switch on the control stand to arm the alternate control system.
(g) Do a check for 28 VDC between pin 6 of connector DB27002 and structure ground (WDM 27-51-17).
(h) Turn the ALT FLAPS control switch to the EXT position.
(i) With the ALT FLAPS control switch in the EXT position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27002 (WDM 27-51-18).
(j) Turn the ALT FLAPS control switch to the RET position.
(k) With the ALT FLAPS control switch in the RET position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27002 (WDM 27-51-18).
(l) If there is 115 VAC at pins 1, 2 and 3 and 28 VDC at pin 6 of connector DB27002, then replace the flap electric motor, B27002. These are the tasks:
- Flap Electric Motor Removal, AMM TASK 27-51-34-000-801
 - Flap Electric Motor Installation, AMM TASK 27-51-34-400-801
- 1) Turn the ALT FLAPS control switch to the OFF position.
 - 2) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.

EFFECTIVITY
ARO ALL

27-51 TASK 807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 232
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
 - 4) Use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - 5) If the flaps operate with the alternate system, then you corrected the fault.
- (m) If there is not 28 VDC at pin 6 of connector DB27002, then do this wiring check between the flap electric motor, B27002 and the Flaps Bypass/Clutch Relay, K27002 on the P110 panel:

- 1) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-17).
- 2) Do a wiring check between these pins of connector DB27002 on the flap electric motor, B27002 and connector DK27002 on the P110 panel (WDM 27-51-17):

DB27002	DK27002
pin 6	pin B2

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 4) If you do not find a problem with the wiring, then install a new Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 5) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
 - 6) Use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - a) If the flaps operate with the alternate system, then you corrected the fault
- (n) If there is not 115 VAC at pins 1, 2 and 3 then do this wiring check between the flap electric motor, B27002 and the Flaps Retract Relay, K27006 on the P110 panel:
- 1) Remove the Flaps Retract Relay, K27006 from the P110 panel (WDM 27-51-18).
 - 2) Do a wiring check between these pins of connector DB27002 on the flap electric motor, B27002 and connector DK27006 on the P110 panel (WDM 27-51-18):

DB27002	DK27006
pin 1	pin A2
pin 2	pin B2
pin 3	pin C2

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Flaps Retract Relay, K27006 on the P110 panel.
- 4) If you do not find a problem with the wiring, then do this wiring check between the Flaps Retract Relay, K27006 and the Flaps Extend Relay K27004 on the P110 panel:
 - a) Remove the Flaps Extend Relay, K27004 from the P110 panel (WDM 27-51-18).
 - b) Do a wiring check between these pins of connector DK27004 and connector DK27006 on the P110 panel (WDM 27-51-18):

EFFECTIVITY
ARO ALL

27-51 TASK 807

D633W103-ARO

Page 233
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DK27004

pin A1	.....	pin A3
pin A3	.....	pin A1
pin B1	.....	pin B3
pin B3	.....	pin C1
pin C1	.....	pin C3
pin C3	.....	pin B1

DK27006

- c) If you find a problem with the wiring, then repair the wiring.
 - d) Reinstall the Flaps Retract Relay, K27006 on the P110 panel.
 - e) Reinstall the Flaps Extend Relay, K27004 on the P110 panel.
- 5) If you do not find a problem with the wiring, then install a new Flaps Extend Relay, K27004 and a new Flaps Retract Relay, K27006 on the P110 panel.
- 6) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
- 7) Use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- a) If the flaps operate with the alternate system, then you corrected the fault
- (o) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
- (p) Turn the ALT FLAPS control switch to the OFF position.
- (q) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (r) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (8) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (9) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-51 TASK 807



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (10) Remove FSEU 1, M27001 from the E1-6 shelf.
- (11) Do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and FSEU 1, M27001:
- (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-17).
- (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27002 on the P110 panel (WDM 27-51-17):

DM27001AA	DK27002
pin D5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
- (12) Open this circuit breaker and install safety tag:

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (13) Do this check of the wiring between the Flaps Extend Relay, K27004 and FSEU 1, M27001:

EFFECTIVITY
ARO ALL

27-51 TASK 807



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the Flaps Extend Relay, K27004 from the P110 panel (WDM 27-51-17).
- (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27004 on the P110 panel (WDM 27-51-17):

DM27001AA	DK27004
pin D1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Re-install the Flaps Extend Relay, K27004 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-17).
- (14) Do this check of the wiring between the Flaps Retract Relay, K27006 and FSEU 1, M27001:
 - (a) Remove the Flaps Retract Relay, K27006 from the P110 panel (WDM 27-51-17).
 - (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27006 on the P110 panel (WDM 27-51-17):

DM27001AA	DK27006
pin G1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-51 TASK 807

D633W103-ARO

Page 236
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install FSEU 1 on the E1-6 shelf.
- 3) Re-install the Flaps Retract Relay, K27006 on the P110 panel.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-17).
- (15) Replace FSEU 1, M27001. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (16) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-51 TASK 807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 237
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (17) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

808. Flap Secondary System Auto Test Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20451.

B. Initial Evaluation

- (1) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (a) If the circuit breakers were not closed, use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breakers were closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do a check of the electrical power to the flap electric motor, B27002:

EFFECTIVITY
ARO ALL

27-51 TASKS 807-808

D633W103-ARO

Page 238
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (b) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (c) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
(d) Disconnect the electrical connector, DB27002 from the flap electric motor, B27002.
(e) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (f) Push the ALT FLAPS ARM switch on the control stand to arm the alternate control system.
(g) Do a check for 28 VDC between pin 6 of connector DB27002 and structure ground (WDM 27-51-17).
(h) Turn the ALT FLAPS control switch to the EXT position.
(i) With the ALT FLAPS control switch in the EXT position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27002 (WDM 27-51-18).
(j) Turn the ALT FLAPS control switch to the RET position.
(k) With the ALT FLAPS control switch in the RET position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27002 (WDM 27-51-18).
(l) If there is 115 VAC at pins 1, 2 and 3 and 28 VDC at pin 6 of connector DB27002, then replace the flap electric motor, B27002.

These are the tasks:

EFFECTIVITY
ARO ALL

27-51 TASK 808

D633W103-ARO

Page 239
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap Electric Motor Removal, AMM TASK 27-51-34-000-801,
Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.

- 1) Turn the ALT FLAPS control switch to the OFF position.
- 2) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.
- 3) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
- 4) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (m) If there is not 28 VDC at pin 6 of connector DB27002, then do this wiring check between the flap electric motor, B27002 and the Flaps Bypass/Clutch Relay, K27002 on the P110 panel:
- 1) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-17).
 - 2) Do a wiring check between these pins of connector DB27002 on the flap electric motor, B27002 and connector DK27002 on the P110 panel (WDM 27-51-17):

DB27002	DK27002
pin 6	pin B2

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
- 4) If you do not find a problem with the wiring, then install a new Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
- 5) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
- 6) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (n) If there is not 115 VAC at pins 1, 2 and 3 then do this wiring check between the flap electric motor, B27002 and the Flaps Retract Relay, K27006 on the P110 panel:
- 1) Remove the Flaps Retract Relay, K27006 from the P110 panel (WDM 27-51-18).
 - 2) Do a wiring check between these pins of connector DB27002 on the flap electric motor, B27002 and connector DK27006 on the P110 panel (WDM 27-51-18):

EFFECTIVITY
ARO ALL

27-51 TASK 808

D633W103-ARO

Page 240
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DB27002

pin 1	.....	pin A2
pin 2	.....	pin B2
pin 3	.....	pin C2

DK27006

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Flaps Retract Relay, K27006 on the P110 panel.
- 4) If you do not find a problem with the wiring, then do this wiring check between the Flaps Retract Relay, K27006 and the Flaps Extend Relay K27004 on the P110 panel:
 - a) Remove the Flaps Extend Relay, K27004 from the P110 panel (WDM 27-51-18).
 - b) Do a wiring check between these pins of connector DK27004 and connector DK27006 on the P110 panel (WDM 27-51-18):

DK27004

pin A1	.....	pin A3
pin A3	.....	pin A1
pin B1	.....	pin B3
pin B3	.....	pin C1
pin C1	.....	pin C3
pin C3	.....	pin B1

DK27006

- c) If you find a problem with the wiring, then repair the wiring.
 - d) Reinstall the Flaps Retract Relay, K27006 on the P110 panel.
 - e) Reinstall the Flaps Extend Relay, K27004 on the P110 panel.
- 5) If you do not find a problem with the wiring, then install a new Flaps Extend Relay, K27004 and a new Flaps Retract Relay, K27006 on the P110 panel.
- 6) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
- 7) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (o) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
- (p) Turn the ALT FLAPS control switch to the OFF position.
- (q) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.

EFFECTIVITY
ARO ALL

27-51 TASK 808

D633W103-ARO

Page 241
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (r) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (3) Do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and FSEU 1, M27001:
- (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-17).
- (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27002 on the P110 panel (WDM 27-51-17):

DM27001AA	DK27002
pin D5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
- (4) Open this circuit breaker and install safety tag:

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (5) Do this check of the wiring between the Flaps Extend Relay, K27004 and FSEU 1, M27001:

EFFECTIVITY
ARO ALL

27-51 TASK 808

D633W103-ARO

Page 242
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the Flaps Extend Relay, K27004 from the P110 panel (WDM 27-51-17).
- (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27004 on the P110 panel (WDM 27-51-17):

DM27001AA	DK27004
pin D1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Re-install the Flaps Extend Relay, K27004 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-17).
- (6) Do this check of the wiring between the Flaps Retract Relay, K27006 and FSEU 1, M27001:
 - (a) Remove the Flaps Retract Relay, K27006 from the P110 panel (WDM 27-51-17).
 - (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27006 on the P110 panel (WDM 27-51-17):

DM27001AA	DK27006
pin G1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-51 TASK 808

D633W103-ARO

Page 243
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install FSEU 1 on the E1-6 shelf.
- 3) Re-install the Flaps Retract Relay, K27006 on the P110 panel.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-17).
- (7) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (8) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-51 TASK 808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 244
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (9) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

809. **Sensor Excitation Voltage Problems FSEU 1 - Fault Isolation**

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20261.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (2) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (4) Remove FSEU 1, M27001 from the E1-6 shelf.
- (5) Do a wiring check between this pin on connector DM27001AA at the E1-6 shelf and connector D4690P on the P105 integration panel (WDM 27-51-11):

DM27001AA	D4690P
pin A1	pin B13

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-51 TASKS 808-809

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 245
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install FSEU 1, M27001.
- 3) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between this pin on connector DM27001AC at the E1-6 shelf and connector D4690P on the P105 integration panel (WDM 27-51-11):

DM27001AC	D4690P
pin K1	pin B13

- (a) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

———— **END OF TASK** ————

810. Flap Sensor Excitation Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20271.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do a check for maintenance messages for specific flap and slat system sensors.
 - (a) If you find other sensor maintenance messages, then do the applicable fault isolation task for that maintenance message.

NOTE: Look at the excitation wiring for the applicable sensor.

EFFECTIVITY
ARO ALL

27-51 TASKS 809-810

D633W103-ARO

Page 246
Sep 05/2017

777-200/300
FAULT ISOLATION MANUAL

- (2) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (3) Remove FSEU 1, M27001 from the E1-6 shelf.
- (4) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (5) Do a check for 24 to 28 VAC between pins K1 and J1 on connector DM27001AC and pins A1 and B1 on connector DM27001AA at the E1-6 shelf (WDM 27-51-11).
- (6) If the voltage is not in the limit, do a wiring check between these pins on connector D31023P at the P310 standby power management panel and connectors DM27001AC and DM27001AA at the E1-6 shelf (WDM 27-51-11):

D31023P **DM27001AC**
pin 11 pin K1

D31023P **DM27001AA**
pin 11 pin A1

- If you find a problem with the wiring, repair the wiring.
- If you do not find a problem with the wiring, replace this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (c) Re-install FSEU 1, M27001.
- (d) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (e) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
- 2) If the maintenance message shows on the MAT, then continue.

— EFFECTIVITY
AROUND ALL

27-51 TASK 810

D633W103-ARO

Page 247
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (7) If the voltage is in the limit, install a new FSEU 1. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

811. Left and Right Flap Position Sensor Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20691.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Use the alternate system to retract the flaps to the retracted position. To retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- (3) Look at the FLAP POS L1 and FLAP POS R1 indications on the FLAP/SLAT maintenance page on EICAS.

- (a) Replace the flap position sensor for the flap position indication which is further from 10.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,
Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

NOTE: The flap position sensor for FLAP POS L1 is M27101 in the left wheel well. The flap position sensor for FLAP POS R1 is M27102 in the right wheel well.

- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Replace the other flap position sensor 1L, M27101 or 1R, M27102.

These are the tasks:

EFFECTIVITY
ARO ALL

27-51 TASKS 810-811

D633W103-ARO

Page 248
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) Remove FSEU 1, M27001 from the E1-6 shelf.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (7) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (8) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (9) Do a wiring check between FSEU 1, M27001 and flap position sensor R1, M27102:
- (a) Disconnect connector DM27102 from flap position sensor R1, M27102 in the right main wheel well.
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DM27102 at the flap position sensor 1R, M27102 in the right wheel well (WDM 27-58-11):

DM27001AA	DM27102
pin A3	pin 1
pin B3	pin 2
pin D9	pin 3
pin D10	pin 4
pin E9	pin 5
pin E10	pin 6

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27102.

EFFECTIVITY
ARO ALL

27-51 TASK 811

D633W103-ARO

Page 249
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (e) Re-connect connector DM27102 to flap position sensor R1, M27102 in the right main wheel well.
- (10) Do a wiring check between FSEU 1, M27001 and flap position sensor L1, M27101:
- (a) Disconnect connector DM27101 from flap position sensor L1, M27101 in the left main wheel well.
- (b) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DM27101 at the flap position sensor 1L, M27101 in the left wheel well (WDM 27-58-11):

DM27001AC	DM27101
pin K3	pin 1
pin J3	pin 2
pin G9	pin 3
pin G10	pin 4
pin F9	pin 5
pin F10	pin 6

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27101.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (d) Re-connect connector DM27101 to flap position sensor L1, M27101 in the left main wheel well.
- (11) Re-install FSEU 1, M27001 on the E1-6 shelf.

EFFECTIVITY
ARO ALL

27-51 TASK 811

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 250
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (12) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (13) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

———— **END OF TASK** ————

812. Left Flap Position Sensor Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20701.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the flap position sensor 1L, M27101 in the left wheel well.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-51 TASKS 811-812

D633W103-ARO

Page 251
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (4) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (5) Remove FSEU 1, M27001 from the E1-6 shelf.
- (6) Do a wiring check between FSEU 1, M27001 and flap position sensor L1, M27101:
- (a) Disconnect connector DM27101 from flap position sensor L1, M27101 in the left main wheel well.
- (b) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DM27101 at the flap position sensor 1L, M27101 in the left wheel well (WDM 27-58-11):

DM27001AC	DM27101
pin K3	pin 1
pin J3	pin 2
pin G9	pin 3
pin G10	pin 4
pin F9	pin 5
pin F10	pin 6

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27101.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (7) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (a) Re-connect connector DM27101 to flap position sensor L1, M27101 in the left main wheel well.
- (b) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-51 TASK 812

D633W103-ARO

Page 252
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (8) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

———— END OF TASK ————

813. Right Flap Position Sensor Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20711.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the flap position sensor 1R, M27102 in the right wheel well.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-51 TASKS 812-813

D633W103-ARO

Page 253
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (5) Remove FSEU 1, M27001 from the E1-6 shelf.
- (6) Do a wiring check between FSEU 1, M27001 and flap position sensor R1, M27102:
 - (a) Disconnect connector DM27102 from flap position sensor R1, M27102 in the right main wheel well.
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DM27102 at the flap position sensor 1R, M27102 in the right wheel well (WDM 27-58-11):

DM27001AA	DM27102
pin A3	pin 1
pin B3	pin 2
pin D9	pin 3
pin D10	pin 4
pin E9	pin 5
pin E10	pin 6

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27102.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (7) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (a) Re-connect connector DM27102 to flap position sensor R1, M27102 in the right main wheel well.
 - (b) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (c) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 813

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 254
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (8) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

END OF TASK

814. FSEU 1 Fault Latched Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20721.

B. Initial Evaluation

- (1) If the Maintenance Access Terminal (MAT) Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (2) Do this ground test on the MAT: 27 High Lift System, Line Replaceable Unit (LRU) Replacement Test, FSEU 1.
- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, and the Engine Indication and Crew Alerting System (EICAS) message FLAP/SLAT CONTROL 1 does not show, then you corrected the fault.
- (3) An intermittent failure of the ALTN FLAPS ARM switch S27052 can also set mm 27-20721. Do a wiring check of the wiring between the ALTN FLAPS ARM switch, S27052 and FSEU 1, M27001.
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove the ALTN FLAPS ARM switch, S27052 from the control stand.
- (d) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and DS27052 at the ALTN FLAPS ARM switch, S27052 on the control stand (WDM 27-51-17):

DM27001AC	DS27052
pin B3	pin 5

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-51 TASKS 813-814

D633W103-ARO

Page 255
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install FSEU 1, M27001 and ALTN FLAPS ARM switch, S27052.
- 3) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (f) If you do not find a problem with the wiring, replace the ALTN FLAPS ARM switch, S27052 on the control stand (WDM 27-51-17).

END OF TASK

815. FSEU 1 No Input from FSEU 2 on ARINC 429 Bus - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20921.

B. Initial Evaluation

- (1) If the MAT Existing Faults display shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: If you use a megohmmeter to do wiring checks on an ARINC 429 bus (or if you need the exact resistance of the bus wiring), first remove all the LRUs that are connected to the bus (use the WDM to tell which LRUs are on the bus). Then re-install the LRUs when you are done.

- (1) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (b) If the MAT Existing Faults display shows ACTIVE for the maintenance message, then continue.

- (2) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (b) If the MAT Existing Faults display shows ACTIVE for the maintenance message, then continue.

- (3) Do this check of the wiring:

- (a) Remove FSEU 1, M27001 from the E1-6 shelf.
- (b) Remove FSEU 2, M27002 from the E4-1 shelf.

EFFECTIVITY
ARO ALL

27-51 TASKS 814-815

D633W103-ARO

Page 256
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Do a wiring check between these pins of connector DM27001AC on FSEU 1, M27001 and connector DM27002AA on FSEU 2, M27002 (WDM 27-51-12):

DM27001AC	DM27002AA
pin C1	pin F3
pin C2	pin F5

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
 - 3) Re-install FSEU 2, M27002 on the E4-1 shelf.
 - 4) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

END OF TASK

816. FSEU 2 ARINC 429 Bus to FSEU 1 Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20931.

B. Initial Evaluation

- (1) If the MAT Existing Faults display shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: If you use a megohmmeter to do wiring checks on an ARINC 429 bus (or if you need the exact resistance of the bus wiring), first remove all the LRUs that are connected to the bus (use the WDM to tell which LRUs are on the bus). Then re-install the LRUs when you are done.

- (1) Do this check of the wiring:
- (a) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AC on FSEU 1, M27001 and connector DM27002AA on FSEU 2, M27002 (WDM 27-51-12):

DM27001AC	DM27002AA
pin C1	pin F3
pin C2	pin F5

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-install FSEU 2, M27002.
 - 4) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 815-816

D633W103-ARO

Page 257
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) If the MAT Existing Faults display shows ACTIVE for the maintenance message, then continue.
- (2) Re-install FSEU 2, M27002, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (3) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (a) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

— END OF TASK —

817. Flaps Relay K27002 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20751.

B. Initial Evaluation

- (1) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
 - (a) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do this wiring check:
 - (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27002 on the P110 panel (WDM 27-51-17):

DM27001AA

pin D5

DK27002

pin X2

EFFECTIVITY
ARO ALL

27-51 TASKS 816-817

D633W103-ARO

Page 258
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
- 3) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
- 4) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 5) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

818. Flaps Secondary Auto Test, Relay K27002 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20761.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 817-818

D633W103-ARO

Page 259
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27002 on the P110 panel (WDM 27-51-17):

DM27001AA	DK27002
pin D5	pin X2

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
 - 3) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 4) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - 5) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

819. Flaps Relay K27004 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20791.

B. Initial Evaluation

- (1) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-17).
 - (a) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 818-819

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 260
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do this wiring check:
 - (a) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector D11039P on the P110 panel (WDM 27-51-17):

DM27001AA	D11039P
pin D1	pin 5

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
 - 3) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- 4) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

820. Flaps Secondary Auto Test, Relay K27004 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20801.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 819-820

D633W103-ARO

Page 261
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector D11039P on the P110 panel (WDM 27-51-17):

DM27001AA	D11039P
pin D1	pin 5
- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

821. Flaps Relay K27006 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20831.

B. Initial Evaluation

- (1) Use the secondary system to retract the flaps to another position. To retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 820-821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 262
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-17).
 - (a) Use the secondary system to retract the flaps to another position. To retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do this wiring check:
 - (a) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector D11039P on the P110 panel (WDM 27-51-17):

DM27001AA	D11039P
pin G1	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
 - (d) Use the secondary system to retract the flaps to another position. To retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

822. Flaps Secondary Auto Test, Relay K27006 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20841.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 821-822

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 263
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector D11039P on the P110 panel (WDM 27-51-17):

DM27001AA	D11039P
pin G1	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

823. Flap Lever Position Sensing Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20891.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 822-823

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 264
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

(1) Do this check to see if the fault is in FSEU 1:

(a) Open these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

(b) Exchange FSEU 1, M27001 (E1-6 shelf) with FSEU 2, M27002 (E4-1 shelf).

(c) Close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

(d) If the MAT Existing Faults display shows ACTIVE for maintenance message 27-20892, then do these steps:

1) Replace FSEU 2 (this is the FSEU initially installed in the position of FSEU 1).

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

2) If the MAT Existing Faults display shows NOT ACTIVE for maintenance message 27-20892 (or if the message does not show), then you corrected the fault.

(e) If the MAT Existing Faults display shows ACTIVE for maintenance message 27-20891, then continue.

(2) Replace the flap lever position sensor, M27037 in the control stand.

These are the tasks:

Flap Lever Position Sensor Removal, AMM TASK 27-51-03-000-801,

Flap Lever Position Sensor Installation, AMM TASK 27-51-03-400-801.

(a) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

(b) If the MAT shows ACTIVE for the maintenance message, then continue.

(3) Do this check of the wiring between FSEU 1, M27001 and the flap lever position sensor, M27037:

EFFECTIVITY
ARO ALL

27-51 TASK 823

D633W103-ARO

Page 265
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Disconnect connectors DM27037A and DM27037B for the flap lever position sensor, M27037 in the control stand.
- (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DM27037A at the flap lever position sensor, M27037 in the control stand (WDM 27-51-13):

DM27001AA	DM27037A
pin A2	pin 1
pin B2	pin 2
pin A9	pin 4
pin B9	pin 5

- (e) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DM27037B at the flap lever position sensor, M27037 in the control stand (WDM 27-51-13):

DM27001AC	DM27037B
pin K2	pin 1
pin J2	pin 2
pin K9	pin 4
pin J9	pin 5

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connectors DM27037A and DM27037B.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT Existing Faults display does not show ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

824. Left to Right Flap Position Sensor Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21191.

EFFECTIVITY
ARO ALL

27-51 TASKS 823-824

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 266
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (2) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a visual check of the torque tubes between the flap power drive unit (PDU) and the flap position sensor gearboxes and the wiring for the flap position sensors in the left and right wheel wells.
 - (a) If you find a problem with the wiring, repair the wiring.
 - (b) If the torque tubes are broken or disconnected, connect or replace the torque tubes.

These are the tasks:

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,

Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

- 1) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
- 2) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 824

D633W103-ARO

Page 267
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If you do not find a problem with the torque tubes, then continue.
- (4) Replace the flap position sensor 1L, M27101 in the left wheel well.
- These are the tasks:
- Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,
Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.
- (a) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE:** Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (5) Replace FSEU 1, M27001.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (a) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE:** Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (6) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (7) Remove FSEU 1, M27001 from the E1-6 shelf.
- (8) Do this check of the wiring between the flap position sensor 1L, M27101 and FSEU 1, M27001:
- (a) Disconnect the connector DM27101 flap position sensor 1L, M27101 in the left wheel well.
 - (b) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DM27101 on flap position sensor 1L, M27101 (WDM 27-58-11):

EFFECTIVITY
ARO ALL

27-51 TASK 824

D633W103-ARO

Page 268
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AC	DM27101
pin K3	pin 1
pin J3	pin 2
pin G9	pin 3
pin G10	pin 4
pin F9	pin 5
pin F10	pin 6

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Reconnect connector DM27101 to flap position sensor 1L, M27101 in the left main wheel well.
 - 3) Re-install FSEU 1 on the E1-6 shelf.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
 - a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Reconnect connector DM27101 to flap position sensor 1L, M27101 in the left main wheel well.
- (9) Do this check of the wiring between the flap position sensor 1R, M27102 and FSEU 1, M27001:
 - (a) Disconnect the connector DM27102 flap position sensor 1R, M27102 in the right wheel well.
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DM27102 on flap position sensor 1R, M27102 (WDM 27-58-11):

DM27001AA	DM27102
pin A3	pin 1
pin B3	pin 2
pin D9	pin 3
pin D10	pin 4
pin E9	pin 5
pin E10	pin 6

- (c) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-51 TASK 824

D633W103-ARO

Page 269
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Reconnect connector DM27102 to flap position sensor 1R, M27102 in the right main wheel well.
- 3) Re-install FSEU 1 on the E1-6 shelf.
- 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (10) Re-install FSEU 1 on the E1-6 shelf.
- (11) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (12) Replace the flap position sensor 1R, M27102 in the right wheel well.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (13) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-51 TASK 824

D633W103-ARO

Page 270
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

825. Left and Right Flap Position Sensor Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21201.

B. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (2) Use the primary system to extend the flaps to the 30-unit position and retract them to the retracted position. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a check of the torque tubes between the flap power drive unit (PDU) and the flap position sensor gearboxes in the left and right wheel wells.
 - (a) If the torque tubes are broken or disconnected, connect or replace the torque tubes.

These are the tasks:

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,

Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

 - 1) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

EFFECTIVITY
ARO ALL

27-51 TASK 825

D633W103-ARO

Page 271
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Use the primary system to extend the flaps to the 30-unit position and retract them to the retracted position. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If you do not find a problem with the torque tubes, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (4) Make sure the flaps are in the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, AMM TASK 27-51-00-860-805.
- (5) Make sure the index marks for the rig indicator on the flap position sensor gearbox align.
- (6) Use the FLAP/SLAT maintenance page on EICAS to make sure the four FLAP POS indications are in the limit of 8.50 to 11.00.
- (7) If FLAP POS indications are not in the limit, replace the applicable flap position sensors.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

NOTE: FLAP POS L1 is M27101; FLAP POS R1 is M27102; FLAP POS L2 is M27201; FLAP POS R2 is M27202.

- (a) If the four FLAP POS indications on the FLAP/SLAT maintenance page on EICAS are in the limit of 8.50 to 11.00, do this test:
 - 1) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
 - 2) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the four FLAP POS indications on the FLAP/SLAT maintenance page on EICAS are not the limit, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (8) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the four FLAP POS indications on the FLAP/SLAT maintenance page on EICAS are in the limit of 8.50 to 11.00, do this test:

EFFECTIVITY
ARO ALL

27-51 TASK 825

D633W103-ARO

Page 272
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 2) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the four FLAP POS indications on the FLAP/SLAT maintenance page on EICAS are not the limit, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (9) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (10) Remove FSEU 1, M27001 from the E1-6 shelf.
- (11) If FLAP POS L1 is not in the limit, do this check of the wiring between the flap position sensor 1L, M27101 and FSEU 1, M27001:
 - (a) Disconnect the connector DM27101 from the flap position sensor 1L, M27101 in the left wheel well.
 - (b) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DM27101 on flap position sensor 1L, M27101 (WDM 27-58-11):

DM27001AC	DM27101
pin K3	pin 1
pin J3	pin 2
pin G9	pin 3
pin G10	pin 4
pin F9	pin 5
pin F10	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Reconnect connector DM27101 to flap position sensor 1L, M27101 in the left main wheel well.
 - 3) Re-install FSEU 1 on the E1-6 shelf.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-51 TASK 825

D633W103-ARO

Page 273
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Reconnect connector DM27101 to the flap position sensor 1L, M27101 in the left main wheel well.
- (12) If FLAP POS R1 is not in the limit, do this check of the wiring between the flap position sensor 1R, M27102 and FSEU 1, M27001:
 - (a) Disconnect the connector DM27102 from the flap position sensor 1R, M27102 in the right wheel well.
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DM27102 on flap position sensor 1R, M27102 (WDM 27-58-11):

DM27001AA		DM27102	
pin A3	.....	pin 1	
pin B3	.....	pin 2	
pin D9	.....	pin 3	
pin D10	.....	pin 4	
pin E9	.....	pin 5	
pin E10	.....	pin 6	

- (c) If you find a problem with the wiring, then repair the wiring.
- (d) Reconnect connector DM27102 to flap position sensor 1R, M27102 in the right main wheel well.
- (e) Re-install FSEU 1 on the E1-6 shelf.
- (f) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 825

D633W103-ARO

Page 274
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (13) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

826. Right to Left Flap Position Sensor Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21211.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a check of the torque tubes between the flap power drive unit (PDU) and the flap position sensor gearboxes in the left and right wheel wells.
- (a) If the torque tubes are broken or disconnected, connect or replace the torque tubes.
- These are the tasks:
- Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.
- 1) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

EFFECTIVITY
ARO ALL

27-51 TASKS 825-826

D633W103-ARO

Page 275
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 2) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - b) If you do not find a problem with the torque tubes, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (4) Replace the flap position sensor 1R, M27102 in the right wheel well.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (5) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) Remove FSEU 1, M27001 from the E1-6 shelf.
- (7) Do this check of the wiring between the flap position sensor 1R, M27102 and FSEU 1, M27001:
 - (a) Disconnect the connector DM27102 flap position sensor 1R, M27102 in the right wheel well.
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DM27102 on flap position sensor 1R, M27102 (WDM 27-58-11):

DM27001AA	DM27102
pin A3	pin 1
pin B3	pin 2
pin D9	pin 3
pin D10	pin 4
pin E9	pin 5
pin E10	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Reconnect connector DM27102 to flap position sensor 1R, M27102 in the right main wheel well.
 - 3) Re-install FSEU 1 on the E1-6 shelf.

EFFECTIVITY
ARO ALL

27-51 TASK 826

D633W103-ARO

Page 276
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (8) Do this check of the wiring between the flap position sensor 1L, M27101 and FSEU 1, M27001:
- (a) Disconnect the connector DM27101 flap position sensor 1L, M27101 in the left wheel well.
- (b) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DM27101 on flap position sensor 1L, M27101 (WDM 27-58-11):

DM27001AC	DM27101
pin K3	pin 1
pin J3	pin 2
pin G9	pin 3
pin G10	pin 4
pin F9	pin 5
pin F10	pin 6

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Reconnect connector DM27101 to flap position sensor 1L, M27101 in the left main wheel well.
 - 3) Re-install FSEU 1 on the E1-6 shelf.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-51 TASK 826

D633W103-ARO

Page 277
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (9) Reconnect connector DM27101 to flap position sensor 1L, M27101 in the left main wheel well.
- (10) Re-install FSEU 1 on the E1-6 shelf.
- (11) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (12) Replace the flap position sensor 1L, M27101 in the left wheel well.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
- 2) If the maintenance message shows on the MAT, then continue.
- (13) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 826

D633W103-ARO

Page 278
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (14) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

827. Primary Flaps Extend Slow Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25181.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.

NOTE: This fault can occur if there is not sufficient hydraulic power available. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power. The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps.

- (a) If the maintenance message does not show on the ground test display, then do the Fault Isolation Procedure - Intermittent Extend Solenoid Problem below.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Extend Problem below.

C. Fault Isolation Procedure - Intermittent Extend Solenoid Problem



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Primary Extend solenoid on the flap primary control valve, V27004 in the right main wheel well:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
K	9	C27632	FLAPS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-51 TASKS 826-827

D633W103-ARO

Page 279
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (c) Do a check of the resistance between pins 9 and 19 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):
- (d) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the Primary Extend solenoid on the flap primary control valve, V27004.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
 - 2) Do a check of the resistance between pins 9 and 19 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-15).
NOTE: This does a check of the internal wiring on the primary control valve, V27004.
 - a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- (e) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (g) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - 1) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Extend Problem below.
 - 2) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 280
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

D. Fault Isolation Procedure - Slow Extend Problem



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

- (3) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1:

- (a) If the FLAP/SLAT CONTROL 1 EICAS message shows, then replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (b) If the FLAP/SLAT CONTROL 1 EICAS message does not show, then continue.

- (4) If the AFT FLAPS PRIMARY EXTEND COIL fault shows on the MAT, then replace the Primary Extend solenoid on the flap primary control valve, V27004.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1:

- (b) If the MAT shows PASSED after the ground test, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.

- 1) If the MAT shows PASSED after the ground test, then you corrected the fault.

- (c) Do this wiring check between FSEU 1, M27001 and the primary control valve, V27004 in the right wheel well:

EFFECTIVITY
ARO ALL

27-51 TASK 827

D633W103-ARO

Page 281
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- 1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- 2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- 3) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Remove FSEU 1, M27001 from the E1-6 shelf.
- 5) Disconnect electrical connector DV27004B from the flap primary control valve, V27004.
- 6) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

DM27001AC	DV27004B
pin F1	pin 8

- 7) If you find a problem with the wiring, then repair the wiring.
- 8) Re-install FSEU 1, M27001.
- 9) Re-connect connector DV27004B to the flap primary control valve, V27004.
- 10) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

EFFECTIVITY
ARO ALL

27-51 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 282
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- (d) If you do not find a problem with the wiring, then continue.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, replace the flap primary control valve, V27004.
- These are the tasks:
- Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (6) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, replace the flap hydraulic motor.
- These are the tasks:
- Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801,
Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (7) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, replace the flap power drive unit.
- These are the tasks:
- Flap Power Drive Unit (PDU) Removal, AMM TASK 27-51-31-000-801,
Flap Power Drive Unit (PDU) Installation, AMM TASK 27-51-31-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (8) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 827

D633W103-ARO

Page 283
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (9) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

END OF TASK

828. Primary Flaps Operate Fast Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-25191, 27-25211.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - 2) If the MAT shows PASSED after the ground test, then continue.
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 827-828

D633W103-ARO

Page 284
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

829. Primary Flaps Retract Slow Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25201.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.

NOTE: This fault can occur if there is not sufficient hydraulic power available. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power. The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps.

- (a) If the maintenance message does not show on the ground test display, then do the Fault Isolation Procedure - Intermittent Retract Solenoid Problem below.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Retract Problem below.

C. Fault Isolation Procedure - Intermittent Retract Solenoid Problem



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Primary Retract solenoid on the flap primary control valve, V27004 in the right main wheel well:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-51 TASKS 828-829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 285
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (c) Do a check of the resistance between pins 2 and 17 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):
- (d) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the Primary Retract solenoid on the flap primary control valve, V27004.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
 - 2) Do a check of the resistance between pins 2 and 17 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-15).
NOTE: This does a check of the internal wiring on the primary control valve, V27004.
 - a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- (e) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (g) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - 1) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Retract Problem below.
 - 2) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

EFFECTIVITY
ARO ALL

27-51 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 286
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

D. Fault Isolation Procedure - Slow Retract Problem



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- (6) Remove FSEU 1, M27001 from the E1-6 shelf.

EFFECTIVITY
ARO ALL

27-51 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 287
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (7) Do this wiring check between the Low Speed Solenoid on the flap primary control valve, V27004 and FSEU 1, M27001:
- (a) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
 - (b) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

DM27001AC	DV27004B
pin F1	pin 8

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (8) Do this wiring check between the Retract Solenoid and FSEU 1:
 - (a) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

DM27001AC	DV27004B
pin D1	pin 2

- (b) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27004B.

EFFECTIVITY
ARO ALL

27-51 TASK 829

D633W103-ARO

Page 288
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (9) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (10) Re-install FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (11) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- (12) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (13) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, replace the flap primary control valve, V27004.

EFFECTIVITY
ARO ALL

27-51 TASK 829

D633W103-ARO

Page 289
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

———— END OF TASK ————

830. Primary Flaps Low Speed Extend Slow Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25221.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the center hydraulic system is not pressurized, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-51 TASKS 829-830

D633W103-ARO

Page 290
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (5) Replace the Primary Extend solenoid on the flap primary control valve, V27004. These are the tasks:
- Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802
- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (7) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004. These are the tasks:
- Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801
- 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- b) If the maintenance message shows on the ground test display, then continue.
- (b) If the MAT shows PASSED after the ground test, then continue.
- (8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

EFFECTIVITY
ARO ALL

27-51 TASK 830

D633W103-ARO

Page 291
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (9) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (10) Do a check of the internal wiring in the primary control valve, V27004 for the Primary Extend solenoid:
- Disconnect electrical connector DV27004B from the flap primary control valve, V27004.
 - Do a check of the resistance between pins 9 and 19 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):
 - If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - Replace the flap primary control valve, V27004. These are the tasks:
 - Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801
 - Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
 - Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - If the maintenance message does not show on the ground test display, then you corrected the fault.
 - If the resistance between the pins is in the limit, or if the maintenance message shows on the ground test display, then continue.
- (11) Replace the flap hydraulic motor. These are the tasks:
- Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801
 - Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801
- Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - If the maintenance message does not show on the ground test display, then you corrected the fault.
 - If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-51 TASK 830

D633W103-ARO

Page 292
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (12) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (13) Remove FSEU 1, M27001 from the E1-6 shelf.
- (14) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

DM27001AC	DV27004B
pin G1	pin 9

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (15) Do a wiring check between these pins on connector D31037P at the P310 standby power management panel and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

D31037P	DV27004B
pin 13	pin 19

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27004B.

EFFECTIVITY
ARO ALL

27-51 TASK 830

D633W103-ARO

Page 293
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (16) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (17) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (18) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- (19) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

**WARNING**

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (20) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

831. Primary Flaps Low Speed Operate Fast Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-25231, 27-25251.

EFFECTIVITY
ARO ALL

27-51 TASKS 830-831

D633W103-ARO

Page 294
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the Low Speed solenoid on the flap primary control valve, V27004.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

 - 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-51 TASK 831

D633W103-ARO

Page 295
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows PASSED after the ground test, then continue.
- (6) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (7) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (8) Do a check of the internal wiring in the primary control valve, V27004 for the Low Speed solenoid:
- (a) Disconnect electrical connector DV27004B from the flap primary control valve, V27004.
- (b) Do a check of the resistance between pins 8 and 18 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):
- (c) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
- 1) Replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - 2) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (d) If the resistance between the pins is in the limit, or if the maintenance message shows on the ground test display, then continue.
- (9) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

EFFECTIVITY
ARO ALL

27-51 TASK 831

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 296
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C27601	FSEU 1

- (10) Remove FSEU 1, M27001 from the E1-6 shelf.
- (11) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

DM27001AC	DV27004B
pin F1	pin 8

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (12) Do a wiring check between these pins on connector D31037P at the P310 standby power management panel and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

D31037P	DV27004B
pin 13	pin 18

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27004B.

EFFECTIVITY
ARO ALL

27-51 TASK 831

D633W103-ARO

Page 297
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (13) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (14) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (15) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- (16) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (17) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

832. Primary Flaps Low Speed Retract Slow Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25241.

EFFECTIVITY
ARO ALL

27-51 TASKS 831-832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the center hydraulic system is not pressurized, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (5) Replace the Primary Retract solenoid on the flap primary control valve, V27004.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.

EFFECTIVITY
ARO ALL

27-51 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.1
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (7) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

 - 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - (b) If the MAT shows PASSED after the ground test, then continue.
- (8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (9) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (10) Do a check of the internal wiring in the primary control valve, V27004 for the Primary Retract solenoid:
 - (a) Disconnect electrical connector DV27004B from the flap primary control valve, V27004.
 - (b) Do a check of the resistance between pins 2 and 17 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):
 - (c) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - 2) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.

EFFECTIVITY
ARO ALL

27-51 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.2
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (d) If the resistance between the pins is in the limit, or if the maintenance message shows on the ground test display, then continue.

- (11) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (12) Remove FSEU 1, M27001 from the E1-6 shelf.

- (13) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

DM27001AC	DV27004B
pin D1	pin 2

- (a) If you find a problem with the wiring, do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 1, M27001.
- 3) Re-connect connector DV27004B.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.

EFFECTIVITY
ARO ALL

27-51 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.3
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (14) Do a wiring check between these pins on connector D31037P at the P310 standby power management panel and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

D31037P	DV27004B
pin 13	pin 17

- (a) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (15) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (16) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (17) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-51 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.4
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (18) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (19) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

END OF TASK

833. Secondary Flaps Extend Slow Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25261.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, continue.
- (2) Use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- (a) If the flaps do not operate in alternate mode, replace the flap electric motor, B27002.
- These are the tasks:
- Flap Electric Motor Removal, AMM TASK 27-51-34-000-801,
- Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.

EFFECTIVITY
ARO ALL

27-51 TASKS 832-833

D633W103-ARO

Page 298.5
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, or if the flaps operate in alternate mode, continue.
- (3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the maintenance message does not show on the ground test display, replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, continue.
- (4) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (5) Remove FSEU 1, M27001 from the E1-6 shelf.
- (6) Do this check of the flaps bypass/clutch relay, K27002:
 - (a) Remove the flaps bypass/clutch relay, K27002 from the P110 power management panel (WDM 27-51-17).
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27002 at the P110 power management panel (WDM 27-51-17):

DM27001AA	DK27002
pin D5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.

EFFECTIVITY
ARO ALL

27-51 TASK 833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.6
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Install the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 1. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
- (f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-51 TASK 833

D633W103-ARO

Page 298.7
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (j) If the maintenance message shows on the ground test display, then continue.
- (7) Do this check of the flaps extend relay, K27004:
 - (a) Remove the flaps extend relay, K27004 from the P110 power management panel (WDM 27-51-17).
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27004 at the P110 power management panel (WDM 27-51-17):

DM27001AA	DK27004
pin D1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Install the flaps extend relay, K27004 on the P110 power management panel (WDM 27-51-17).
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 1. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the flaps extend relay, K27004 on the P110 power management panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-51 TASK 833

D633W103-ARO

Page 298.8
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the flaps extend relay, K27004 on the P110 power management panel (WDM 27-51-17).
- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

834. Secondary Flaps Retract Slow Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25271.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-51 TASKS 833-834

D633W103-ARO

Page 298.9
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, continue.
- (2) Use the alternate mode to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - (a) If the flaps do not operate in alternate mode, replace the flap electric motor, B27002.

These are the tasks:

Flap Electric Motor Removal, AMM TASK 27-51-34-000-801,

Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.

 - 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, or if the flaps operate in alternate mode, continue.
 - (3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the maintenance message does not show on the ground test display, replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

 - 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, continue.
 - (4) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

EFFECTIVITY
ARO ALL

27-51 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.10
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C27601	FSEU 1

- (5) Remove FSEU 1, M27001 from the E1-6 shelf.
- (6) Do this check of the flaps bypass/clutch relay, K27002:
 - (a) Remove the flaps bypass/clutch relay, K27002 from the P110 power management panel (WDM 27-51-17).
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27002 at the P110 power management panel (WDM 27-51-17):

DM27001AA	DK27002
pin D5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Install the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 1. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-51 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.11
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (j) If the maintenance message shows on the ground test display, then continue.
- (7) Do this check of the flaps retract relay, K27006:
- (a) Remove the flaps retract relay, K27006 from the P110 power management panel (WDM 27-51-17).
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27006 at the P110 power management panel (WDM 27-51-17):

DM27001AA	DK27006
pin G1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Install the flaps retract relay, K27006 on the P110 power management panel (WDM 27-51-17).
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-51 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.12
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 1. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the flaps retract relay, K27006 on the P110 power management panel (WDM 27-51-17).
- (f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the flaps retract relay, K27006 on the P110 power management panel (WDM 27-51-17).
- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-51 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.13
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

835. Flap Control Lever Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25411.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2.
 - (a) If the MAT does not show PASSED after the ground test, then replace the flap lever position sensor, M27037.

These are the tasks:
Flap Lever Position Sensor Removal, AMM TASK 27-51-03-000-801,
Flap Lever Position Sensor Installation, AMM TASK 27-51-03-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001.

These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (2) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (3) Do this wiring check between the flap lever position sensor, M27037 and FSEU 1, M27001:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Disconnect electrical connector DM27037A on the control stand for the flap lever position sensor, M27037 (WDM 27-51-13).
- (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DM27037A at the control stand (WDM 27-51-13):

EFFECTIVITY
ARO ALL

27-51 TASK 835

D633W103-ARO

Page 298.14
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AA

pin A2	.....	pin 1
pin B2	.....	pin 2
pin A9	.....	pin 4
pin B9	.....	pin 5

DM27037A

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Connect electrical connector DM27037A on the control stand for the flap lever position sensor, M27037 (WDM 27-51-13).
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If the maintenance message shows on the ground test display or, if you do not find a problem with the wiring, then continue.
- (g) Connect electrical connector DM27037A on the control stand for the flap lever position sensor, M27037 (WDM 27-51-13).
- (h) Disconnect electrical connector DM27037B on the control stand for the flap lever position sensor, M27037 (WDM 27-51-13).
- (i) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DM27037B at the control stand (WDM 27-51-13):

DM27001AC

pin J2	.....	pin 2
pin K2	.....	pin 1
pin J9	.....	pin 5
pin K9	.....	pin 4

DM27037B

- (j) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Connect electrical connector DM27037B on the control stand for the flap lever position sensor, M27037 (WDM 27-51-13).

EFFECTIVITY
ARO ALL

27-51 TASK 835

D633W103-ARO

Page 298.15
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
- 6) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

836. Flaps Skew and Position Sensor Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21221.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for broken or disconnected torque tubes for the flap drive system:

NOTE: It is likely that there are broken or disconnected torque tubes between the flap position sensor gearboxes and flap supports No. 1 and 8.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) Look at the torque tubes in the main landing gear wheel wells outboard of the position sensor gearboxes to see if they are broken or disconnected.
- (d) Look at the indications for the INBD FLAPS and OUTBD FLAPS on the FLAP/SLAT maintenance page on EICAS.
- 1) Compare the indications for the adjacent flap supports to see if they are different by more than 1 volt.
- 2) If the indications are different by more than 1 volt, then look at the torque tubes between the applicable flap supports.

EFFECTIVITY
ARO ALL

27-51 TASKS 835-836

D633W103-ARO

Page 298.16
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (e) Look at the torque tubes between flap support No. 1 and No. 2.
- 1) If the flaps are retracted, remove these access panels to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- (f) Look at the torque tubes between flap supports No. 2 and No. 3.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (g) Look at the torque tubes between flap supports No. 3 and No. 4.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- (h) Look at the torque tubes between flap supports No. 5 and No. 6.

- 1) Remove these access panels to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

- (i) Look at the torque tubes between flap supports No. 6 and No. 7.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- (j) Look at the torque tubes between flap support No. 7 and No. 8.

EFFECTIVITY
ARO ALL

27-51 TASK 836

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.17
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- (k) If you see a broken or disconnected torque tube, replace the applicable torque tube, torque tube support or no-back brake:
 - 1) If it is necessary, replace an outboard wing torque tube. These are the tasks:
 - Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801
 - Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801
 - 2) If it is necessary, replace an inboard wing torque tube. These are the tasks:
 - Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802
 - Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802
 - 3) If it is necessary, replace torque tube in the wheel well. These are the tasks:
 - Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803
 - Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803
 - 4) If it is necessary, replace an outboard wing torque tube support. These are the tasks:
 - Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802
 - Outboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-802
 - 5) If it is necessary, replace an inboard wing torque tube support. These are the tasks:
 - Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801
 - Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801
- (l) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
- (m) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (n) Install the applicable access panels:

- 1) Install these access panels between flap supports No. 1 and No. 2:

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- 2) Install these access panels between flap supports No. 2 and 3:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-51 TASK 836

D633W103-ARO

Page 298.18
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Install these access panels between flap supports No. 3 and No. 4:

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- 4) Install these access panels between flap supports No. 5 and No. 6:

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

- 5) Install these access panels between flap supports No. 6 and No. 7:

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- 6) Install these access panels between flap supports No. 7 and No. 8:

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (o) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (p) If you do not see broken or disconnected torque tubes, then continue.
- (2) Replace FSEU 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

END OF TASK

837. FSEU 1 Control Channel No Input from Monitor Channel on Systems 629 Bus-C1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21231.

EFFECTIVITY
ARO ALL

27-51 TASKS 836-837

D633W103-ARO

Page 298.19
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the ARINC 629 coupler, B27301, in the P311 panel.

These are the tasks:

ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,

ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.

NOTE: This coupler connects the control channel for FSEU 1 to the Systems 629 Bus C1.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the ARINC 629 coupler, B27302, in the P311 panel.

These are the tasks:

ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,

ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.

NOTE: This coupler connects the monitor channel for FSEU 1 to the Systems 629 Bus C1.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Do this check of the wiring from FSEU 1 to the coupler, B27301:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Disconnect the connector DB27301 from the coupler B27301.
 - (d) Do a wiring check between these pins of connector DM27001AB on FSEU 1, M27001 and connector DB27301 at the P311 panel (WDM 27-51-11):

EFFECTIVITY
ARO ALL

27-51 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.20
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AB	DB27301
pin 3TR	pin 1
pin 3T	pin 2
pin 6TR	pin 4
pin 6T	pin 5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DB27301 to the coupler, B27301.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (5) Re-connect connector DB27301 to the coupler, B27301.
- (6) Do this check of the wiring from FSEU 1 to the coupler, B27302:
 - (a) Disconnect the connector DB27302 from the coupler B27302.
 - (b) Do a wiring check between these pins of connector DM27001AD on FSEU 1, M27001 and connector DB27302 at the P311 panel (WDM 27-51-11):

DM27001AD	DB27302
pin 3TR	pin 1
pin 3T	pin 2
pin 6TR	pin 4
pin 6T	pin 5

- (c) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DB27302 to the coupler, B27302.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-51 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.21
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

838. FSEU 1 Monitor Channel No Input from Control Channel on Systems 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21241.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the ARINC 629 coupler, B27102, in the P111 panel.

These are the tasks:

ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,

ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.

NOTE: This coupler connects the monitor channel for FSEU 1 to the Systems 629 Bus-L.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the ARINC 629 coupler, B27101, in the P111 panel.

These are the tasks:

ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,

ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.

NOTE: This coupler connects the control channel for FSEU 1 to the Systems 629 Bus-L.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Do this check of the wiring from FSEU 1 to the coupler, B27102:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Disconnect the connector DB27102 from the coupler B27102.

EFFECTIVITY
ARO ALL

27-51 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.22
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins of connector DM27001AD on FSEU 1, M27001 and connector DB27102 at the P111 panel (WDM 27-51-11):

DM27001AD	DB27102
pin 2TR	pin 1
pin 2T	pin 2
pin 5TR	pin 4
pin 5T	pin 5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DB27102 to the coupler, B27102.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (5) Re-connect connector DB27102 to the coupler, B27102.
- (6) Do this check of the wiring from FSEU 1 to the coupler, B27101:
- (a) Disconnect the connector DB27101 from the coupler B27101.
- (b) Do a wiring check between these pins of connector DM27001AB on FSEU 1, M27001 and connector DB27101 at the P111 panel (WDM 27-51-11):

DM27001AB	DB27101
pin 2TR	pin 1
pin 2T	pin 2
pin 5TR	pin 4
pin 5T	pin 5

- (c) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DB27101 to the coupler, B27101.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-51 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.23
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— END OF TASK —————

839. FSEU Synchronization Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25011.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check to see if the fault is in FSEU 1:

- (a) Open these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Exchange FSEU 1, M27001 (E1-6 shelf) with FSEU 2, M27002 (E4-1 shelf).
- (c) Close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (d) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (e) If the maintenance message does not show on the ground test display, then do these steps:
- 1) Replace FSEU 2 (this is the FSEU initially installed in the position of FSEU 1).
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

EFFECTIVITY
ARO ALL

27-51 TASKS 838-839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.24
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- 2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- 3) If the maintenance message 27-25012 does not show on the ground test display, then you corrected the fault.
- (f) If the maintenance message 27-25011 shows on the ground test display, then continue.
- (2) Do this check of the wiring between FSEU 1, M27001 and FSEU 2, M27002:
 - (a) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AC on FSEU 1, M27001 and connector DM27002AA on FSEU 2, M27002 (WDM 27-51-12):

DM27001AC

pin C1
pin C2

DM27002AA

pin F3
pin F5

- (d) Do a wiring check between these pins of connector DM27001AA on FSEU 1, M27001 and connector DM27002AC on FSEU 2, M27002 (WDM 27-51-11):

DM27001AA

pin F3
pin F5

DM27002AC

pin C1
pin C2

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-install FSEU 2, M27002.
 - 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring (or if the maintenance message shows), then continue.
- (3) Replace FSEU 1 (this is the FSEU initially installed in the position of FSEU 2).

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

840. Flaps or Slats Not Retracted During Test Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-25021, 27-25022.

EFFECTIVITY
ARO ALL

27-51 TASKS 839-840

D633W103-ARO

Page 298.25
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

NOTE: This message can only occur during the start of a test. It will occur when you select NO when the MAT shows this statement: Slats & Flaps Retracted. If you select YES this maintenance message will not show on the ground test display.

- (1) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, AMM TASK 27-51-00-860-805.
- (2) Retract the leading edge slats to the retracted position. To retract the slats, do this task: Retract the Leading Edge Slats, AMM TASK 27-81-00-860-805.
- (3) If you can retract the flaps and slats, then you corrected the fault.

————— **END OF TASK** —————

841. FSEU 1 No Output on Systems 629 Bus - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-28801.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

————— **END OF TASK** —————

842. FSEU 1 No Output Systems 629 Bus-L - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-28841.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 840-842

D633W103-ARO

Page 298.26
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the ARINC 629 couplers, B27101 and B27102, in the P111 panel.

These are the tasks:

ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,

ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.

NOTE: Coupler B27101 connects the control channel for FSEU 1 to the Systems 629 Bus-L.
Coupler B27102 connects the monitor channel for FSEU 1 to the Systems 629 Bus-L.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the wiring from FSEU 1 to the coupler, B27102:
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Disconnect the connector DB27102 from the coupler B27102.
- (d) Do a wiring check between these pins of connector DM27001AD on FSEU 1, M27001 and connector DB27102 at the P111 panel (WDM 27-51-11):

DM27001AD	DB27102
pin 2TR	pin 1
pin 2T	pin 2
pin 5TR	pin 4
pin 5T	pin 5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DB27102 to the coupler, B27102.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Re-connect connector DB27102 to the coupler, B27102.
- (5) Do this check of the wiring from FSEU 1 to the coupler, B27101:
- (a) Disconnect the connector DB27101 from the coupler B27101.

EFFECTIVITY
ARO ALL

27-51 TASK 842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.27
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Do a wiring check between these pins of connector DM27001AB on FSEU 1, M27001 and connector DB27101 at the P111 panel (WDM 27-51-11):

DM27001AB	DB27101
pin 2TR	pin 1
pin 2T	pin 2
pin 5TR	pin 4
pin 5T	pin 5

- (c) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DB27101 to the coupler, B27101.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— END OF TASK —————

843. Secondary Flaps Do Not Operate Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25281.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.

EFFECTIVITY
ARO ALL

27-51 TASKS 842-843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.28
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, then continue.
- (2) Make sure that the flap position sensors are in rig, do this task: Flap Position Sensor Installation, AMM TASK 27-58-03-400-801



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (5) Do this wiring check of the Bypass solenoid on the flap primary control valve, V27004:
 - (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (b) Disconnect electrical connector DV27004A from the flap primary control valve, V27004 in the right wheel well.
- (c) Do a check of the resistance between pins 10 and 16 of connector DV27004A on the flap primary control valve, V27004 in the left wheel well (WDM 27-51-17):
- (d) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the Bypass solenoid on the flap primary control valve, V27004.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

- 2) Do a check of the resistance between pins 10 and 16 of connector DV27004A on the flap primary control valve, V27004 again (WDM 27-51-17).

NOTE: This does a check of the internal wiring on the primary control valve, V27004.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

EFFECTIVITY
ARO ALL

27-51 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.29
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.
- 3) Connect electrical connector DV27004A to the flap primary control valve, V27004 in the right wheel well.
- 4) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
 - (a) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

 - 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the MAT does not show PASSED after the ground test, then continue.
- (7) Do this check of the flaps bypass/clutch relay, K27002:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove the flaps bypass/clutch relay, K27002 from the P110 power management panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-51 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.30
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27002 at the P110 power management panel (WDM 27-51-17):

DM27001AA	DK27002
pin D5	pin X2

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Install the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (8) Install a new flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
- (9) Re-install FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (10) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1

EFFECTIVITY
ARO ALL

27-51 TASK 843

D633W103-ARO

Page 298.31
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C27601	FSEU 1

- (11) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (12) Do this wiring check between the flaps retract relay, K27006 and FSEU 1, M27001:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove the flaps retract relay, K27006 from the P110 power management panel (WDM 27-51-17).
- (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27006 at the P110 power management panel (WDM 27-51-17):

DM27001AA	DK27006
pin G1	pin X2

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Install the flaps retract relay, K27006 on the P110 power management panel (WDM 27-51-17).
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-51 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.32
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - f) If the maintenance message shows on the ground test display, then continue.
- (13) Install a new flaps retract relay, K27006 on the P110 power management panel (WDM 27-51-17).
- (14) Install FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (15) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (16) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (17) Replace the flap primary control valve, V27004 in the right wheel well.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- (18) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 843

D633W103-ARO

Page 298.33
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message shows on the ground test display, then continue.
- (19) Replace the flap electric motor, B27002.
These are the tasks:
Flap Electric Motor Removal, AMM TASK 27-51-34-000-801,
Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
- (20) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (21) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— END OF TASK —————

844. Flaps Shutoff Valve Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25291.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the Shutoff Solenoid on the flap primary control valve, V27004 in the right wheel well.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,

EFFECTIVITY
ARO ALL

27-51 TASKS 843-844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.34
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
 - (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Disconnect connector DV27004A from the flap primary control valve, V27004 in the right wheel well.
- (d) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004A at the flap primary control valve, V27004 (WDM 27-51-15):

DM27001AC	DV27004A
pin G5	pin 7

- (e) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-51 TASK 844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.35
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-install FSEU 1, M27001.
- 3) Re-connect connector DV27004A to the flap primary control valve, V27004.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (7) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

845. Flaps Primary System Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25301.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

EFFECTIVITY
ARO ALL

27-51 TASKS 844-845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.36
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- b) If the maintenance message shows on the ground test display, then replace the flap hydraulic motor.

These are the tasks:

Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801,

Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.

- 2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (b) If the MAT shows PASSED after the ground test, then continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

- (4) Do a wiring check between the flap primary control valve, V27004 and FSEU 1, M27001:

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Disconnect connectors DV27004A and DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (d) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004A at the flap primary control valve, V27004 (WDM 27-51-15):

EFFECTIVITY
ARO ALL

27-51 TASK 845

D633W103-ARO

Page 298.37
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AC

pin G5 pin 7

DV27004A

- (e) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004B at the flap primary control valve, V27004 (WDM 27-51-15):

DM27001AC

pin D1 pin 2

pin F1 pin 8

pin G1 pin 9

DV27004B

- (f) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 1, M27001.
- 3) Re-connect connectors DV27004A and DV27004B to the flap primary control valve, V27004.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
 - (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (6) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.

EFFECTIVITY
ARO ALL

27-51 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.38
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message shows on the ground test display, replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (7) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the flap hydraulic motor.
These are the tasks:
Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801,
Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
- (9) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (10) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

846. Flap Secondary System Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25311.

B. Description

- (1) The Flaps do not operate in the Secondary Mode.

C. Possible Causes

- (1) Flap Drive System Locked:
 - (a) Flap Electric Motor, B27002
 - (b) Flap Power Drive Unit (PDU)
 - (c) Flap Primary Control Valve, V27004
 - (d) Inboard Flap Inboard (Outboard) Transmission
 - (e) Outboard Flap Inboard (Outboard) Transmission
 - (f) Inboard Flap Inboard (Outboard) Ballscrew
 - (g) Outboard Flap Inboard (Outboard) Ballscrew

EFFECTIVITY
ARO ALL

27-51 TASKS 845-846

D633W103-ARO

Page 298.39
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (h) Gearbox
- (2) Flap Drive System Not Locked:
 - (a) Flap Electric Motor, B27002
 - (b) Flaps Extend Relay, K27004
 - (c) Flaps Retract Relay, K27006
 - (d) Flaps Bypass/Clutch Relay, K27002
 - (e) FSEU, M27001
 - (f) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

E. Related Data

- (1) WDM 27-51-17
- (2) WDM 27-51-18

F. Initial Evaluation

- (1) Do this Ground Test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - (b) If the maintenance message shows on the Ground Test Display, then continue.
- (2) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (a) If the circuit breakers were not closed, do this Ground Test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-51 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.40
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the Ground Test Display, then you corrected the problem.
- (b) If the circuit breakers were closed, or if the maintenance message shows on the Ground Test Display, then continue.
- (3) Do this check to see if the Flap Drive System is locked:
 - (a) Use the Primary System to extend and retract the flaps. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - 1) If the flaps do not operate with the Primary System, then the Flap Drive System is locked. Do Fault Isolation Procedure - Flap Drive System Locked below.
 - 2) If the flaps operate with the Primary System, then the Flap Drive System is not locked. Do Fault Isolation Procedure - Flap Drive System Not Locked below.

G. Fault Isolation Procedure - Flap Drive System Locked



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, install them. This is the task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Install the Landing Gear Door Safety Pins. This is the task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) For the Center Hydraulic System, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (4) Disconnect the Torque Tubes inboard of the Flap Position Sensor Gearboxes.



DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 1200 POUND-INCH(113 N-M) TORQUE OR FASTER THAN 400 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.



DO NOT LET THE BALLSCREW NUTS HIT THE UP STOPS OR DOWN STOPS. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE POSITION SENSOR GEARBOX.

EFFECTIVITY
ARO ALL

27-51 TASK 846

D633W103-ARO

Page 298.41
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(CAUTION PRECEDES)



CAUTION

DO NOT LET THE BALLSCREW ACTUATOR HIT THE MECHANICAL STOPS. DAMAGE TO THE BALLSCREW ACTUATOR AND THE STABILIZER CAN OCCUR.

- (5) Use the Manual Drive on the Flap Position Sensor Gearboxes to extend and retract the flaps on each wing. This is the task: Trailing Edge Flap System Manual Operation, AMM TASK 27-51-00-980-801.
 - (a) If you can extend and retract the flaps on each wing, do these steps:
 - 1) Remove the Flap Electric Motor, B27002. This is the task: Flap Electric Motor Removal, AMM TASK 27-51-34-000-801.
 - 2) Use a T.E. flap torque tube coupling drive adapter, SPL-1704 to turn the Flap PDU in the EXTEND and RETRACT directions.
 - a) If you can turn the PDU, install a new Flap Electric Motor, B27002. This is the task task: Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
<1> Do the Repair Confirmation at the end of this task.
 - b) If you cannot turn the PDU, do this task: Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801.
<1> Re-install the Flap Electric Motor. This is the task: Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
 - 3) Use a T.E. flap torque tube coupling drive adapter, SPL-1704 to turn the Flap PDU in the EXTEND and RETRACT directions.
 - a) If you cannot turn the PDU, replace it. These are the tasks:
 - Flap Power Drive Unit (PDU) Removal, AMM TASK 27-51-31-000-801
 - Flap Power Drive Unit (PDU) Installation, AMM TASK 27-51-31-400-801<1> Do the Repair Confirmation at the end of this task.
 - 4) Try to turn the Output Shaft on the Flap Hydraulic Motor.
 - a) If you can turn the Output Shaft on the Flap Hydraulic Motor, replace the Flap Primary Control Valve, V27004. These are the tasks:
 - Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801<1> Re-install the Flap Hydraulic Motor. This is the task: Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
<2> Do the Repair Confirmation at the end of this task.
 - b) If you cannot turn the Output Shaft on the Flap Hydraulic Motor, install a new Flap Hydraulic Motor. This is the task: Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
<1> Do the Repair Confirmation at the end of this task.
 - (b) If you cannot extend and retract the flaps on one of the wings, open the access panels on the applicable wing to find where the Flap Drive System is locked:

EFFECTIVITY
ARO ALL

27-51 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.42
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the flap drive system is locked on the left wing, open

<u>Number</u>	<u>Name/Location</u>
573DR	Flap Support Fairing No. 3 Panel
576CL	Flap Support Fairing No. 2 Panel
577DL	Flap Support Fairing No. 1 Panel

- 2) If the flap drive system is locked on the right wing, open

<u>Number</u>	<u>Name/Location</u>
673DL	Flap Support Fairing No. 6 Panel
676CR	Flap Support Fairing No. 7 Panel
677DR	Flap Support Fairing No. 8 Panel

- (c) If the Torque Trip Indicator shows “tripped” for a Transmission, do these steps:

- 1) Disconnect the Torque Tubes from the applicable Transmission and try to turn the Torque Tube Couplings.
- 2) If you cannot turn the Transmission, disconnect the Ballscrew from the Transmission and try to turn the Torque Tube Couplings.
 - a) If you cannot turn an Inboard Flap Inboard Transmission, replace the applicable Inboard Transmission. These are the tasks:
 - Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801
 - Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801

<1> Do the Repair Confirmation at the end of this task.
 - b) If you cannot turn an Inboard Flap Outboard Transmission, replace the applicable Outboard Transmission. These are the tasks:
 - Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802
 - Inboard Flap Outboard Transmission Installation, AMM TASK 27-51-15-400-802

<1> Do the Repair Confirmation at the end of this task.
 - c) If you cannot turn an Outboard Flap Inboard Transmission, replace the applicable Inboard Transmission. These are the tasks:
 - Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801
 - Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801

<1> Do the Repair Confirmation at the end of this task.
 - d) If you cannot turn an Outboard Flap Outboard Transmission, replace the applicable Outboard Transmission. These are the tasks:
 - Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802
 - Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801

<1> Do the Repair Confirmation at the end of this task.
 - e) If necessary, connect the Ballscrew to the Transmission.

EFFECTIVITY
ARO ALL

27-51 TASK 846

D633W103-ARO

Page 298.43
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- f) Connect the Torque Tubes to the applicable Transmission.
 - g) Reset the Torque Trip Indicator on the applicable Transmission.
 - 3) Try to turn the Ballscrew on the applicable Transmission.
 - a) If you cannot turn the Ballscrew for the Inboard Flap Inboard Transmission, replace the applicable Inboard Ballscrew. These are the tasks:
 - Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-801
 - Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-801

<1> Do the Repair Confirmation at the end of this task.
 - b) If you cannot turn the Ballscrew for the Inboard Flap Outboard Transmission, replace the applicable Outboard Ballscrew. These are the tasks:
 - Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-802
 - Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-802

<1> Do the Repair Confirmation at the end of this task.
 - c) If you cannot turn the Ballscrew for the Outboard Flap Inboard Transmission, replace the applicable Inboard Ballscrew. These are the tasks:
 - Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-802
 - Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-802.

<1> Do the Repair Confirmation at the end of this task.
 - d) If you cannot turn the Ballscrew for the Outboard Flap Outboard Transmission, replace the applicable Outboard Ballscrew. These are the tasks:
 - Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801
 - Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-801

<1> Do the Repair Confirmation at the end of this task.
 - (d) If none of the Torque Trip Indicators show, or if you did not find a problem with a Transmission or Ballscrew, examine the other Gearboxes for the Flap Drive System on the applicable wing:
 - 1) Disconnect the Torque Tubes from the applicable Gearbox.
 - a) If you cannot manually turn the applicable Gearbox, replace the Gearbox.
 - 2) Connect the Torque Tubes to the applicable Gearbox.
 - 3) Close the access panels on the applicable wing:
 - a) Close these panels on the left wing:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------------------|
| 573DR | Flap Support Fairing No. 3 Panel |
| 576CL | Flap Support Fairing No. 2 Panel |
| 577DL | Flap Support Fairing No. 1 Panel |

EFFECTIVITY
ARO ALL

27-51 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.44
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) Close these panels on the right wing:

<u>Number</u>	<u>Name/Location</u>
673DL	Flap Support Fairing No. 6 Panel
676CR	Flap Support Fairing No. 7 Panel
677DR	Flap Support Fairing No. 8 Panel

- (e) Connect the Torque Tubes to the Flap Position Sensor Gearboxes.
(f) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.



OBEY THE DOOR ACTIVATION PROCEDURE. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (g) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
(h) Do the Repair Confirmation at the end of this task.

H. Fault Isolation Procedure - Flap Drive System Not Locked

- (1) If the Flap Drive System is not locked, use the Alternate System to extend and retract the flaps. This is the task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.

NOTE: This step is done to find if the flaps do not extend, retract or do not operate at all with Electric Power.

- (a) If the flaps do not operate at all with the Alternate System, then replace the Flap Electric Motor, B27002. These are the tasks:
- Flap Electric Motor Removal, AMM TASK 27-51-34-000-801
 - Flap Electric Motor Installation, AMM TASK 27-51-34-400-801
- 1) Do the Repair Confirmation at the end of this task.
- (b) If the flaps do not extend with the Alternate System, then replace the Flaps Extend Relay, K27004 on the P110 Panel (WDM 27-51-17).
- 1) Do the Repair Confirmation at the end of this task.
- (c) If the flaps do not retract with the Alternate System, then replace the Flaps Retract Relay, K27006 on the P110 Panel (WDM 27-51-17).
- 1) Do the Repair Confirmation at the end of this task.
- (2) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (3) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-17).
(4) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (5) Do a check for 28V DC at pin X1 of the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.

EFFECTIVITY
ARO ALL

27-51 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.45
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (a) If you find 28V DC, do these steps:
- 1) Replace the Flaps Bypass/Clutch Relay, K27002.
 - 2) Do the Repair Confirmation at the end of this task.
- (b) If you do not find 28V DC, do these steps:
- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- 2) Examine and repair the wiring between pin X1 of the Flaps Bypass/Clutch Relay connector DK27002 and the FLAPS ELEC CTRL RLY PWR Circuit Breaker, C27631.
- 3) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- 4) Do the Repair Confirmation at the end of this task.
- (6) Remove the FSEU. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (7) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (8) Do a check for 28V DC at pin D5 of the FSEU connector DM27001AA (WDM 27-51-17).

- (a) If you find 28V DC, do these steps:
- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- 2) Install a new FSEU. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- 3) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- 4) Do the Repair Confirmation at the end of this task.
- (b) If you do not find 28V DC, do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and FSEU 1, M27001 (WDM 27-51-17):

EFFECTIVITY
ARO ALL

27-51 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.46
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- 2) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel.
3) Do a wiring check as follows:

FSEU-1	K27002 RLY
DM27001AA	DK27002
pin D5	pin X2

- a) If you find a problem with the wiring, then do these steps:

- <1> Repair the wiring.
- <2> Re-install FSEU 1 on the E1-6 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- <3> Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
- <4> Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- <5> Do the Repair Confirmation at the end of this task.

- b) If you do not find a problem with the wiring, re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel and then continue.

- (9) Do this check of the wiring from the FSEU 1 connector DM27001AA to the Flaps Extend Relay, K27004 and the Flaps Retract Relay, K27006 and between the two Relays (WDM 27-51-17, WDM 27-51-18):

- (a) Open this circuit breaker and install safety tag:

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (b) Remove the Flaps Extend Relay, K27004 and the Flaps Retract Relay, K27006 from the P110 panel.
(c) Do a wiring check as follows:

FSEU 1	FLAPS EXT RLY
DM27001AA	DK27004
pin D1	pin X2

FSEU 1	FLAPS RET RLY
DM27001AA	DK27006
pin G1	pin X2

EFFECTIVITY
ARO ALL

27-51 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.47
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

FLAPS EXT RLY DK27004

pin A1	.....	pin A3
pin A3	.....	pin A1
pin B1	.....	pin B3
pin B3	.....	pin C1
pin C1	.....	pin C3
pin C3	.....	pin B1

FLAPS RET RLY DK27006

- 1) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install FSEU 1 on the E1-6 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - c) Re-install the Flaps Extend Relay, K27004 on the P110 panel.
 - d) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- e) Do the Repair Confirmation at the end of this task.
 - 2) If you do not find a problem with the wiring, do these steps and then continue:
 - a) Re-install the Flaps Extend Relay, K27004 on the P110 panel.
 - b) Re-install FSEU 1 on the E1-6 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (10) Do this check of the wiring from the Flap Electric Motor, B27002 to the Flaps Retract Relay, K27006 and the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17, WDM 27-51-18):



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the Downlock Pins are not installed on the Main and Nose Landing Gear, install them. This is the task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (b) Install the Landing Gear Door Safety Pins. This is the task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

EFFECTIVITY
ARO ALL

27-51 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.48
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (c) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel.
- (d) Disconnect connector DB27002 from the Flap Electric Motor, B27002 in the Right Wheel Well.
- (e) Do a wiring check as follows (WDM 27-51-17, WDM 27-51-18):

FLAP ELEC

MOTOR

DB27002

pin 6 pin B2

RLY K27002

DK27002

FLAP ELEC

MOTOR

DB27002

pin 1 pin A2

pin 2 pin B2

pin 3 pin C2

FLAPS RET RLY

DK27006

- 1) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect electrical connector DB27002 to the Flap Electric Motor.
 - c) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - d) Re-install the Flaps Retract Relay, K27006 on the P110 panel.
 - e) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- f) Do the Repair Confirmation at the end of this task.
 - 2) If you do not find a problem with the wiring, re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel and then continue.
- (11) Do this check of the wiring between the Flaps Extend Relay, K27004 and the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-18):
- (a) Remove the Flaps Extend Relay, K27004 from the P110 panel.
 - (b) Do a wiring check as follows:

EFFECTIVITY
ARO ALL

27-51 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.49
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

FLAPS EXT RLY
DK27004

pin A1	.....	pin A3
pin A3	.....	pin A1
pin B1	.....	pin B3
pin B3	.....	pin C1
pin C1	.....	pin C3
pin C3	.....	pin B1

FLAPS RET RLY
DK27006

- 1) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the Flaps Extend Relay, K27004 on the P110 panel.
 - c) Re-install the Flaps Retract Relay, K27006 on the P110 panel.
 - d) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- e) Do the Repair Confirmation at the end of this task.
 - 2) If you do not find a problem with the wiring, do these steps and then continue.
 - a) Re-install the Flaps Extend Relay, K27004 on the P110 panel.
 - b) Re-install the Flaps Retract Relay, K27006 on the P110 panel.
- (12) Do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and the Flap Primary Control Valve, V27004 in the Right Main Wheel Well (WDM 27-51-17):
- (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel.
 - (b) Disconnect electrical connector DV27004A from the Flap Primary Control Valve, V27004.
 - (c) Do a wiring check as follows:

RLY K27002
DK27002

pin A2		pin 16

PRI CTRL VLV
DV27004A

- 1) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - c) Connect electrical connector DV27004A to the Flap Primary Control Valve, V27004.

EFFECTIVITY
ARO ALL

27-51 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.50
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- d) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- e) Do the Repair Confirmation at the end of this task.

I. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- (a) If the maintenance message does not show on the Ground Test Display, then you corrected the problem.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- 1) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (b) If the maintenance message still shows on the Ground Test Display, then continue the applicable Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

847. Flap Position Sensor Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25321.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 846-847

D633W103-ARO

Page 298.51
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a check of the torque tubes between the flap power drive unit (PDU) and the flap position sensor gearboxes in the left and right wheel wells.
 - (a) If the torque tubes are broken or disconnected, connect or replace the torque tubes.

These are the tasks:

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

 - 1) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 2) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If you do not find a problem with the torque tubes, then continue.
- (4) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

 - (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Use the alternate system to retract the flaps to the retracted position. To retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- (6) Look at the FLAP POS L1 and FLAP POS R1 indications on the FLAP/SLAT maintenance page on EICAS.
 - (a) Replace the flap position sensor for the flap position indication which is further from 10.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

EFFECTIVITY
ARO ALL

27-51 TASK 847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.52
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

NOTE: The flap position sensor for FLAP POS L1 is M27101 in the left wheel well. The flap position sensor for FLAP POS R1 is M27102 in the right wheel well.

- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (7) Replace the other flap position sensor 1L, M27101 or 1R, M27102.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (8) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (9) Remove FSEU 1, M27001 from the E1-6 shelf.
- (10) Do a check of the wiring between FSEU 1 and the flap position sensor 1L, M27101:
 - (a) Disconnect the connector DM27101 from flap position sensor 1L, M27101.
 - (b) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27101 at the flap position sensor 1L, M27101 (WDM 27-58-11):

DM27001AC	DM27101
pin K3	pin 1
pin J3	pin 2
pin G9	pin 3
pin G10	pin 4
pin F9	pin 5
pin F10	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27101.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-51 TASK 847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.53
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you did not find a problem with the wiring, then continue.
- (e) Connect the connector DM27101 to flap position sensor 1L, M27101.
- (11) Do a check of the wiring between FSEU 1 and the flap position sensor 1R, M27102:
 - (a) Disconnect the connector DM27102 from flap position sensor 1R, M27102.
 - (b) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27102 at the flap position sensor 1R, M27102 (WDM 27-58-11):

DM27001AA		DM27102	
pin A3	.....	pin 1	
pin B3	.....	pin 2	
pin D9	.....	pin 3	
pin D10	.....	pin 4	
pin E9	.....	pin 5	
pin E10	.....	pin 6	

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27102.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) Connect the connector DM27102 to flap position sensor 1R, M27102.
- (12) Re-install FSEU 1, M27001 on the E1-6 shelf.
- (13) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-51 TASK 847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.54
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (14) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— END OF TASK —————

848. Flaps Extend Solenoid Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25491.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

EFFECTIVITY
ARO ALL

27-51 TASKS 847-848

D633W103-ARO

Page 298.55
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (6) Do this wiring check of the Primary Extend Solenoid on the flap primary control valve, V27004:
- (a) Do a check of the resistance between pins 9 and 19 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):
- (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

- 1) Replace the Primary Extend solenoid on the flap primary control valve, V27004.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

- 2) Do a check of the resistance between pins 9 and 19 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-15).

NOTE: This does a check of the internal wiring on the primary control valve, V27004.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.

- 3) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.

EFFECTIVITY
ARO ALL

27-51 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.56
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If there is continuity between the pins, then continue.
- (7) Do this wiring check between the flap primary control valve, V27004 and the P310 panel:
 - (a) Do a wiring check between these pins on connector D31037P at the P310 standby power management panel and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

D31037P	DV27004B
pin 13	pin 19

- (b) If there is a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (9) Remove FSEU 1, M27001 from the E1-6 shelf.
- (10) Do this wiring check between the flap Primary Extend Solenoid and FSEU 1:
 - (a) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

DM27001AC	DV27004B
pin G1	pin 9

- (b) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-51 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.57
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 2) Re-install FSEU 1, M27001.
- 3) Re-connect connector DV27004B.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

 WARNING	OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

——— **END OF TASK** ———

849. Flaps Retract Solenoid Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25501.

EFFECTIVITY
ARO ALL

27-51 TASKS 848-849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.58
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (6) Do this wiring check of the Primary Retract Solenoid on the flap primary control valve, V27004:
 - (a) Do a check of the resistance between pins 2 and 17 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

EFFECTIVITY
ARO ALL

27-51 TASK 849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.59
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

- 1) Replace the Primary Retract solenoid on the flap primary control valve, V27004.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

- 2) Do a check of the resistance between pins 2 and 17 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-15).

NOTE: This does a check of the internal wiring on the primary control valve, V27004.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.

- 3) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (c) If there is continuity between the pins, then continue.

- (7) Do this wiring check between the flap primary control valve, V27004 and the P310 panel:

- (a) Do a wiring check between these pins on connector D31037P at the P310 standby power management panel and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

D31037P	DV27004B
pin 13	pin 17

- (b) If there is a problem with the wiring, do these steps:

- 1) Repair the wiring.

- 2) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.

EFFECTIVITY
ARO ALL

27-51 TASK 849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.60
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

(c) If you do not find a problem with the wiring, then continue.

- (8) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (9) Remove FSEU 1, M27001 from the E1-6 shelf.
- (10) Do this wiring check between the flap Primary Retract Solenoid and FSEU 1:
- (a) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

DM27001AC	DV27004B
pin D1	pin 2

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.

EFFECTIVITY
ARO ALL

27-51 TASK 849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.61
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

850. Flaps Low Speed Solenoid Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25511.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.

EFFECTIVITY
ARO ALL

27-51 TASKS 849-850

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.62
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (6) Do this wiring check of the Primary Low Speed Solenoid on the flap primary control valve, V27004:
 - (a) Do a check of the resistance between pins 8 and 18 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):
 - (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the Primary Low Speed solenoid on the flap primary control valve, V27004.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
 - 2) Do a check of the resistance between pins 8 and 18 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-15).
NOTE: This does a check of the internal wiring on the primary control valve, V27004.
 - a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.

EFFECTIVITY
ARO ALL

27-51 TASK 850

D633W103-ARO

Page 298.63
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.
- 3) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If there is continuity between the pins, then continue.
- (7) Do this wiring check between the flap primary control valve, V27004 and the P310 panel:
 - (a) Do a wiring check between these pins on connector D31037P at the P310 standby power management panel and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

D31037P	DV27004B
pin 13	pin 18

- (b) If there is a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 850

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.64
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (9) Remove FSEU 1, M27001 from the E1-6 shelf.
- (10) Do this wiring check between the flap Primary Low Speed Solenoid and FSEU 1:
- (a) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

DM27001AC	DV27004B
pin F1	pin 8

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-51 TASK 850

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.65
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

851. Flaps Shutoff Solenoid Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25521.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-51 TASKS 850-851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.66
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27004A from the flap primary control valve, V27004 in the right wheel well.
- (6) Do this wiring check of the Primary Shutoff Solenoid on the flap primary control valve, V27004:
 - (a) Do a check of the resistance between pins 7 and 8 of connector DV27004A on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):
 - (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the Primary Shutoff solenoid on the flap primary control valve, V27004.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
 - 2) Do a check of the resistance between pins 7 and 8 of connector DV27004A on the flap primary control valve, V27004 again (WDM 27-51-15).
NOTE: This does a check of the internal wiring on the primary control valve, V27004.
 - a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - b) If the resistance between the pins is in the limit, then continue.
 - 3) Connect electrical connector DV27004A to the flap primary control valve, V27004 in the right wheel well.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-51 TASK 851

D633W103-ARO

Page 298.67
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If there is continuity between the pins, then continue.
- (7) Do this wiring check between the flap primary control valve, V27004 and the P310 panel:
- (a) Do a wiring check between these pins on connector D31037P at the P310 standby power management panel and connector DV27004A at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

D31037P	DV27004A
pin 13	pin 8

- (b) If there is a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Connect electrical connector DV27004A to the flap primary control valve, V27004 in the right wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (9) Remove FSEU 1, M27001 from the E1-6 shelf.
- (10) Do this wiring check between the flap Primary Shutoff Solenoid and FSEU 1:
- (a) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27004A at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):

EFFECTIVITY
ARO ALL

27-51 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.68
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AC

pin G5

DV27004A

pin 7

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27004A.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27004A to the flap primary control valve, V27004.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	11	C27604	FLAPS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.69
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— END OF TASK —————

852. Flaps Extend Relay Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25531.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.
- (2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (3) Replace the Flaps Extend Relay, K27004 on the P110 power management panel (WDM 27-51-18).
- (4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-51 TASKS 851-852

D633W103-ARO

Page 298.70
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check between the Flaps Extend Relay and FSEU 1:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove the Flaps Extend Relay, K27004 from the P110 panel.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27004 at the P110 panel (WDM 27-51-17):

DM27001AA	DK27004
pin D1	pin X2

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-install the Flaps Extend Relay, K27004.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-51 TASK 852

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.71
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
- (7) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Re-install the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-18).
- (9) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

853. Flaps Retract Relay Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25541.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 852-853

D633W103-ARO

Page 298.72
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.

1) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.

- (2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (3) Replace the Flaps Retract Relay, K27006 on the P110 power management panel (WDM 27-51-18).

- (4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.

- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (b) If the maintenance message shows on the ground test display, then continue.

- (6) Do this wiring check between the Flaps Retract Relay and FSEU 1:

- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-51 TASK 853

D633W103-ARO

Page 298.73
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove the Flaps Retract Relay, K27006 from the P110 panel.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27006 at the P110 panel (WDM 27-51-17):

DM27001AA	DK27006
pin G1	pin X2

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-install the Flaps Retract Relay, K27004.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (7) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Re-install the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-18).
- (9) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-51 TASK 853

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.74
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

854. Flaps Bypass/Clutch Relay Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25551.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.
- (2) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (3) Replace the Flaps Bypass/Clutch Relay, K27002 on the P110 power management panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-51 TASKS 853-854

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.75
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check between the Flaps Bypass/Clutch Relay and FSEU 1:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27002 at the P110 panel (WDM 27-51-17):

DM27001AA	DK27002
pin D5	pin X2

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-install the Flaps Bypass/Clutch Relay, K27002.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 854

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.76
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) If you do not find a problem with the wiring, then continue.
- (7) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
- (9) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

— END OF TASK —

855. Flaps Skew and Position Sensor Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25581.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only:
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- 1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the MAT does not show PASSED after the ground test, then continue.
- (2) Look for broken or disconnected torque tubes for the flap drive system:

NOTE: It is likely that there are broken or disconnected torque tubes between the flap position sensor gearboxes and flap supports No. 1 and 8.

EFFECTIVITY
ARO ALL

27-51 TASKS 854-855

D633W103-ARO

Page 298.77
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task:
Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) Look at the torque tubes in the main landing gear wheel wells outboard of the position sensor gearboxes to see if they are broken or disconnected.
- (d) Look at the torque tubes between flap support No. 1 and No. 2.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- (e) Look at the torque tubes between flap supports No. 2 and No. 3.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (f) Look at the torque tubes between flap supports No. 3 and No. 4.

- 1) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- (g) Look at the torque tubes between flap supports No. 5 and No. 6.

- 1) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-51 TASK 855

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.78
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (h) Look at the torque tubes between flap supports No. 6 and No. 7.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- (i) Look at the torque tubes between flap support No. 7 and No. 8.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- (j) If you see broken or disconnected torque tubes, replace the applicable torque tubes:

- 1) If it is necessary, replace an outboard wing flap torque tube. These are the tasks:
- Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801
 - Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801
- 2) If it is necessary, replace an inboard wing flap torque tube. These are the tasks:
- Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802
 - Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802
- 3) If it is necessary, replace a flap torque tube in the wheel well. These are the tasks:
- Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803
 - Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803

- (k) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

- (l) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (m) Install the applicable access panels:

- 1) Install these access panels between flap supports No. 1 and No. 2:

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- 2) Install these access panels between flap supports No. 2 and 3:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-51 TASK 855

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.79
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 3) Install these access panels between flap supports No. 3 and No. 4:

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- 4) Install these access panels between flap supports No. 5 and No. 6:

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

- 5) Install these access panels between flap supports No. 6 and No. 7:

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- 6) Install these access panels between flap supports No. 7 and No. 8:

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (n) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (o) If you do not see broken or disconnected torque tubes, then continue.
- (3) Replace the flap skew sensors L1 A, M27323 and R8A, M27322. These are the tasks:
- Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002
 - Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002
- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 855

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.80
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace flap position sensors 1L, M27101 and 1R, M27102. These are the tasks:
 - Flap Position Sensor Removal, AMM TASK 27-58-03-000-801
 - Flap Position Sensor Installation, AMM TASK 27-58-03-400-801
- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

856. FSEU Problem During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25591.

B. Fault Isolation Procedure

- (1) Replace FSEU 1, M27001. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this check of the wiring:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Do a wiring check between these pins at the E1-6 shelf and ground (WDM 27-51-11):
 - 1) Connector DM27001AA, Pin J1
 - 2) Connector DM27001AA, Pin K2.
- (d) If you find a problem with the wiring, then repair the wiring.
- (e) Re-install FSEU 1, M27001.
- (f) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Cycle the ALT ARM switch until FSEU 1 is IN CONTROL.

NOTE: This will cause FSEU 1 to do a self test.

EFFECTIVITY
ARO ALL

27-51 TASKS 855-856

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.81
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (h) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

857. Test ID Problem During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25601.

B. Fault Isolation Procedure

- (1) The requested test function does not exist in the current version of the FSEU. Update the software in FSEU 1, M27001, do this task: Flap/Slat Electronics Unit (FSEU) Software Installation, AMM TASK 27-51-01-400-802.
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

858. Sensor Excitation Voltage Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25611.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1:
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C24420	STBY 28V BUS
A	8	C27513	SNSR EXC 1

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, then continue.
- (2) Do this wiring check between FSEU 1, M27001 and the P310 panel:

EFFECTIVITY
ARO ALL

27-51 TASKS 856-858

D633W103-ARO

Page 298.82
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Do a wiring check between these pins on connector D31023P at the P310 standby power management panel and connector DM27001AA at the E1-6 shelf (WDM 27-51-11):

D31023P	DM27001AA
pin 11	pin A1

- (d) Do a wiring check between these pins on connector D31023P at the P310 standby power management panel and connector DM27001AC at the E1-6 shelf (WDM 27-51-11):

D31023P	DM27001AC
pin 11	pin K1

- (e) If there is a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Connect re-install FSEU 1, M27001 on the E1-6 shelf.
 - 3) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (3) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-51 TASK 858

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.83
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

859. Flap Lever Sensor Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25621.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1:
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Push the ALTN FLAPS ARM switch on the control stand.
NOTE: This is to make sure the flaps do not move during the following steps.
- (2) Move the flap control lever to the 30-unit position.
- (3) Look at the FLAP LEVER indications on the FLAP/SLAT maintenance page on EICAS.
 - (a) If the FLAP LEVER indications are not less than 2.87, then adjust the link between the flap lever position sensor and the flap lever.
 - 1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - (b) If the FLAP LEVER indications are less than 2.87, then continue
- (4) Move the flap control lever to the UP position.
- (5) Look at the FLAP LEVER indications on the FLAP/SLAT maintenance page on EICAS.
 - (a) If the FLAP LEVER indications are 9.44 or less, then adjust the link between the flap lever position sensor and the flap lever.
 - 1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - (b) If the FLAP LEVER indications are more than 9.44, then continue
- (6) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate system.
- (7) Replace the Flap Lever Position Sensor, M27037.

These are the tasks:

Flap Lever Position Sensor Removal, AMM TASK 27-51-03-000-801,

Flap Lever Position Sensor Installation, AMM TASK 27-51-03-400-801.

- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASK 859

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.84
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message shows on the ground test display, then continue.
- (8) Do this wiring check between FSEU 1, M27001 and the flap lever position sensor, M27037:
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect connectors DM27037A and DM27037B for the flap lever position sensors.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DM27037A for the flap lever position sensor, M27037 (WDM 27-51-13):

DM27001AA		DM27037A	
pin A2	.....	pin 1	
pin B2	.....	pin 2	
pin A9	.....	pin 4	
pin B9	.....	pin 5	

- (e) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DM27037B for the flap lever position sensor, M27037 (WDM 27-51-13):

DM27001AC		DM27037B	
pin K2	.....	pin 1	
pin J2	.....	pin 2	
pin K9	.....	pin 4	
pin J9	.....	pin 5	

- (f) If there is a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connectors DM27037A and DM27037B for the flap lever position sensors.
 - 3) Connect re-install FSEU 1, M27001 on the E1-6 shelf.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (9) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-51 TASK 859

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.85
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (10) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (11) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

860. Flap Hydraulic Pressure Low Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20360.

B. Fault Isolation Procedure

NOTE: This maintenance message can occur if the flaps are operated when the center hydraulic system pressure is low or off. This can occur when the center hydraulic system is intentionally off. Therefore, it is possible that there are no problems with the airplane.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- NOTE: Use the Air Driven Pumps (ADPs) to supply hydraulic power.
- (2) Do these steps to find hydraulic system problems:
- (a) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS, 29 Hydraulic System page on the MAT.
- (b) If you find maintenance messages for the center hydraulic system, then do these steps:
- 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - 3) After you have corrected the maintenance messages for the hydraulic system, then continue.
- (c) If there are no maintenance messages for the center hydraulic system, then continue.
- (3) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE: While the flaps operate, look at the hydraulic synoptic page on the MFD to make sure the hydraulic pressure stays higher than 2500 psi.
- (a) If the flaps operate in the primary mode, and the hydraulic pressure stays above 2500 psi, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 859-860

D633W103-ARO

Page 298.86
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (b) If the flaps do not operate in the primary mode, then continue.
- (4) Replace FSEU 1, M27001, or FSEU 2, M27002 that reported the fault.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

————— END OF TASK —————

861. FSEU Alternate Armed Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20130.

B. Initial Evaluation

- (1) If the PRESENT LEG FAULTS display on the MAT shows LATCHED for the maintenance message 27-20980 or 27-20130, then do these steps:

- (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (b) Remove the Slats/Bypass Clutch Relay, K27001 from the P210 panel WDM 27-81-17
- (c) Disconnect the ALTN FLAPS ARM switch, S27052 from the P10 panel WDM 27-81-17
- (d) Do a wiring check between connector DK27001 and connector DS27052 WDM 27-81-17

DS27052	DK27001
pin 2	pin X2

- 1) If you find a problem with the wiring, then repair the wiring.
- a) Reinstall the Slats/Bypass Clutch Relay, K27001 on the P210 panel.
- 2) If you do not find a problem with the wiring, then install a new Slats Bypass/Clutch Relay, K27001 on the P210 panel.
- (e) Connect the electrical connector, DS27052 to the ALTN FLAPS ARM switch, S27052 on the P10 panel.
- (f) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (g) Use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
- 1) If the flaps operate with the alternate system, then you corrected the fault.
- (2) If the PRESENT LEG FAULTS display on the MAT does not show LATCHED for the maintenance message 27-20980 or 27-20130, then continue.
- (3) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-51 TASKS 860-861

D633W103-ARO

Page 298.87
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the ALTN FLAPS ARM switch, M27052 on the control stand (WDM 27-51-17).
- (a) If the MAT shows NOT ACTIVE for the maintenance message, (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Find which FSEU does not agree with the ALTN ARM switch position:
- (a) Make sure the ALTN ARM switch is not in the ARMED position.
- (b) Look at the FLAP/SLAT maintenance page on EICAS.
- (c) If the STATUS of FSEU 1 shows ALT ARM, then there is a problem with FSEU 1.
- (d) If the STATUS of FSEU 2 shows ALT ARM, then there is a problem with FSEU 2.
- (3) If there is a problem with FSEU 1, do these steps:
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DS27052 at the ALTN FLAPS ARM switch, S27052 in the control stand (WDM 27-51-17):

DM27001AC	DS27052
pin B3	pin 5

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
- 2) Re-install FSEU 1, M27001.
- 3) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (e) If you do not find a problem with the wiring, install a new FSEU 1. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (f) If the MAT shows NOT ACTIVE for the maintenance message, (or if the message does not show), then you corrected the fault.
- (g) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) If there is a problem with FSEU 2, do these steps:



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins on connector DM27002AC at the E1-6 shelf and connector DS27052 at the ALTN FLAPS ARM switch, S27052 in the control stand (WDM 27-51-17):

DM27002AC	DS27052
pin B3	pin 8

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (e) If you do not find a problem with the wiring, install a new FSEU 2. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (f) If the MAT shows NOT ACTIVE for the maintenance message, (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

862. Flap Primary Circuit Breaker Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20381.

B. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.
NOTE: This step will cause the maintenance message to become INACTIVE. Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.
- (2) Move the flap control lever to a position which does not agree with the position of the flaps.
- (3) Move the flap control lever to agree with the position of the flaps.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 861-862

D633W103-ARO

Page 298.89
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (a) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: This step will cause the maintenance message to become INACTIVE. Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (b) Move the flap control lever to a different position.

- (c) Move the flap control lever to agree with the position of the flaps.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

- (2) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: This step will cause the maintenance message to become INACTIVE. Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (b) Move the flap control lever to a different position.

- (c) Move the flap control lever to agree with the position of the flaps.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

863. Sensor Excitation Circuit Breaker Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20251.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C24420	STBY 28V BUS
A	8	C27513	SNSR EXC 1

EFFECTIVITY
ARO ALL

27-51 TASKS 862-863

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.90
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, or if the circuit breakers were closed, then continue.
- (2) Do the following (WDM 27-51-11):
Replace this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

864. Flap Electric Motor Circuit Breaker Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-20161, 27-20171.

B. Fault Isolation Procedure

- (1) Close this circuit breaker:

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (2) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

865. Flap Secondary Relay Circuit Breaker Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-20201, 27-20211.

B. Fault Isolation Procedure

- (1) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (2) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

EFFECTIVITY
ARO ALL

27-51 TASKS 863-865

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.91
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

END OF TASK

866. Center Hydraulic System Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21261.

B. Initial Evaluation

- (1) Look at the MAT Existing Faults display for 29 Hydraulic Systems messages related to the center system reservoir quantity or center system HYDIM cards:
- (a) If you find 29 Hydraulic Systems maintenance messages, then do these steps:
- 1) Do the applicable fault isolation tasks for the maintenance messages.
 - 2) When the hydraulic system messages are corrected, then continue.
- (2) Cycle the ALTN FLAPS ARM switch until FSEU 1 is in control.
- (3) Use the primary system to extend and retract the flaps a small distance. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the HYDRAULICS synoptics page on the EICAS display.
- (a) If the quantity for the center hydraulic system reservoir is low, then fill the reservoir, do this task: Hydraulic Reservoir Filling, AMM TASK 12-12-01-610-802.
- 1) Use the primary system to extend and retract the flaps a small distance. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the quantity for the center hydraulic system reservoir is not low, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 1, M27001 and the Left System Card File (LSCF) P85:
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Do a wiring check between these pins of connector DM27001AA on FSEU 1, M27001 and connector DP8513 on the P85 panel (WDM 29-11-37):

EFFECTIVITY
ARO ALL

27-51 TASKS 865-866

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.92
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AA

DP8513

pin J6 pin 18

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 4) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (3) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - a) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

———— **END OF TASK** ————

867. Flaps Retracted Discrete Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21271.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 1, M27001.

These are the tasks:

EFFECTIVITY
ARO ALL

27-51 TASKS 866-867

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.93
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

————— **END OF TASK** —————

868. Flap Secondary Uncommanded Motion Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-21291, 27-21292.

B. Initial Evaluation

- (1) Make sure the ALTN FLAPS control switch is in the OFF position.



WARNING

MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS. THE FLAPS CAN MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

NOTE: Look for movement of the flaps when you arm the alternate control system. As soon as you see the flaps move, disarm the alternate control system.

- (a) If the flaps move when you arm the alternate control system, then do the Fault Isolation Procedure below.
 - (b) If the flaps do not move when you arm the alternate control system, then there was an intermittent fault.
- (3) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.

C. Fault Isolation Procedure

- (1) If the flaps moved in the extend direction while the alternate control system was armed, replace the Flaps Extend relay, K27004 on the left power management panel, P110 (WDM 27-51-18).
- (2) If the flaps moved in the retract direction while the alternate control system was armed, replace the Flaps Retract relay, K27006 on the left power management panel, P110 (WDM 27-51-18).
- (3) Do a test of the Flaps Bypass/Clutch Relay, K27002:
 - (a) With the alternate control system disarmed, move the ALTN FLAPS control switch on the control stand to the EXT and the RET positions.
 - (b) If the flaps did not move while the switch is in the EXT or RET positions, then you corrected the fault.
 - (c) If the flaps move while the switch is in the EXT or RET positions, replace the Flaps Bypass/Clutch Relay, K27002 on the left power management panel, P110 (WDM 27-51-17).
- (4) Do a test of the ALTN FLAPS ARM switch, S27052:
 - (a) With the alternate control system disarmed, move the ALTN FLAPS control switch to the EXT and the RET positions.
 - (b) If the flaps move while the switch is in the EXT or RET positions, replace the ALTN FLAPS ARM switch, S27052 on the control stand, P10 (WDM 27-51-17).
- (5) Make sure the ALTN FLAPS control switch is in the OFF position.

EFFECTIVITY
ARO ALL

27-51 TASKS 867-868

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.94
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (6) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

NOTE: Look for movement of the flaps when you arm the alternate control system. As soon as you see the flaps move, disarm the alternate control system.

- (a) If the flaps do not move when you arm the alternate control system, then you corrected the fault.
- (b) If the flaps move when you arm the alternate control system, then replace the ALTN FLAPS control switch, S27053 on the control stand, P10 (WDM 27-51-17).
- (7) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
- (8) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.
- NOTE:** Look for movement of the flaps when you arm the alternate control system. As soon as you see the flaps move, disarm the alternate control system.
- (a) If the flaps do not move when you arm the alternate control system, then you corrected the fault.
- (b) If the flaps move when you arm the alternate control system, then continue.
- (9) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (10) If the flaps moved in the extend direction when you arm the alternate control system, do this check of the wiring on the ground side of the Flaps Extend Relay, K27004:
- (a) Do a wiring check between these pins on the Flaps Extend Relay, K27004 and connector DS27053 on the ALTN FLAPS control switch, S27053 (WDM 27-51-17):

D11039P	DS27053
pin 5	pin G

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- 3) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

NOTE: Look for movement of the flaps when you arm the alternate control system. As soon as you see the flaps move, disarm the alternate control system.

EFFECTIVITY
ARO ALL

27-51 TASK 868

D633W103-ARO

Page 298.95
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 4) If the flaps do not move when you arm the alternate control system, then you corrected the fault.
- (c) If you did not find a problem with the wiring, then continue.
- (d) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (e) Remove FSEU 1, M27001 from the E1-6 shelf.
- (f) Do a wiring check between these pins on the Flaps Extend Relay, K27004 and connector DM27001AA at the E1-6 shelf (WDM 27-51-17):

D11039P	DM27001AA
pin 5	pin D1

- (g) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 4) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.
- NOTE:** Look for movement of the flaps when you arm the alternate control system. As soon as you see the flaps move, disarm the alternate control system.
- 5) If the flaps do not move when you arm the alternate control system, then you corrected the fault.
- (h) If you did not find a problem with the wiring, then continue.
- (i) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-51 TASK 868

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.96
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (j) Remove FSEU 2, M27002 from the E4-1 shelf.
- (k) Do a wiring check between these pins on the Flaps Extend Relay, K27004 and connector DM27002AA at the E4-1 shelf (WDM 27-51-17):

D11039P	DM27002AA
pin 5	pin D1

- (l) If you find a problem with the wiring, repair the wiring.
- (m) Re-install FSEU 1 on the E1-6 shelf.
- (n) Re-install FSEU 2 on the E4-1 shelf.
- (o) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (p) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.
NOTE: Look for movement of the flaps when you arm the alternate control system. As soon as you see the flaps move, disarm the alternate control system.
- (q) If the flaps do not move when you arm the alternate control system, then you corrected the fault.
- (11) If the flaps moved in the retract direction when you arm the alternate control system, do this check of the wiring on the ground side of the Flaps Retract Relay, K27006:
 - (a) Do a wiring check between these pins on the Flaps Retract Relay, K27006 and connector DS27053 on the ALTN FLAPS control switch, S27053 (WDM 27-51-17):

D11039P	DS27053
pin 6	pin J

- (b) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-51 TASK 868

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.97
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- 3) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

NOTE: Look for movement of the flaps when you arm the alternate control system.
As soon as you see the flaps move, disarm the alternate control system.

- 4) If the flaps do not move when you arm the alternate control system, then you corrected the fault.

- (c) If you did not find a problem with the wiring, then continue.

- (d) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (e) Remove FSEU 1, M27001 from the E1-6 shelf.

- (f) Do a wiring check between these pins on the Flaps Retract Relay, K27006 and connector DM27001AA at the E1-6 shelf (WDM 27-51-17):

D11039P	DM27001AA
pin 6	pin G1

- (g) If you find a problem with the wiring, do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 1 on the E1-6 shelf.
- 3) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-51 TASK 868

D633W103-ARO

Page 298.98
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

NOTE: Look for movement of the flaps when you arm the alternate control system.
As soon as you see the flaps move, disarm the alternate control system.

- 5) If the flaps do not move when you arm the alternate control system, then you corrected the fault.
- (h) If you did not find a problem with the wiring, then continue.
- (i) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (j) Remove FSEU 2, M27002 from the E4-1 shelf.
- (k) Do a wiring check between these pins on the Flaps Retract Relay, K27006 and connector DM27002AA at the E4-1 shelf (WDM 27-51-17):

D11039P	DM27002AA
pin 6	pin G1

- (l) If you find a problem with the wiring, repair the wiring.
- (m) Re-install FSEU 1 on the E1-6 shelf.
- (n) Re-install FSEU 2 on the E4-1 shelf.
- (o) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (p) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

NOTE: Look for movement of the flaps when you arm the alternate control system. As soon as you see the flaps move, disarm the alternate control system.

EFFECTIVITY
ARO ALL

27-51 TASK 868

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.99
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (q) If the flaps do not move when you arm the alternate control system, then you corrected the fault.

————— **END OF TASK** —————

869. FSEU 1 Monitor Channel No Output on Systems 629 Bus-C1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-28851.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the ARINC 629 coupler, B27302, in the P311 panel.

These are the tasks:

ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,

ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.

NOTE: Coupler B27302 connects the monitor channel for FSEU 1 to the Systems 629 Bus-C1.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the wiring from FSEU 1 to the coupler, B27302:
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Disconnect the connector DB27302 from the coupler B27302.
- (d) Do a wiring check between these pins of connector DM27001AD on FSEU 1, M27001 and connector DB27302 at the P311 panel (WDM 27-51-11):

EFFECTIVITY
ARO ALL

27-51 TASKS 868-869

D633W103-ARO

Page 298.100
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AD	DB27302
pin 3TR	pin 1
pin 3T	pin 2
pin 6TR	pin 4
pin 6T	pin 5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DB27302 to the coupler, B27302.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

870. Flaps Uncommanded Motion During Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25640.

B. Fault Isolation Procedure

- (1) Look at the MAT Existing Faults display to find the FLAPS PRIMARY UNCOMMANDED MOTION or FLAPS SECONDARY UNCOMMANDED MOTION maintenance message.

NOTE: The maintenance messages numbers are: 27-20431, 27-20432 (Flaps Primary Uncommanded Motion), 27-21291 and 27-21292 (Flaps Secondary Uncommanded Motion)

- (2) Do the fault isolation procedure for the applicable maintenance message.

————— **END OF TASK** —————

871. Alternate Flaps Extend Problems - Fault Isolation

A. Fault Isolation Procedure

NOTE: The flaps will not extend past the 20-unit position with alternate control.

- (1) Use the secondary system to extend the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.
- (2) If the flaps do not extend with the secondary system, then replace the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-18).
 - (a) Use the alternate system to extend the flaps. To extend them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - 1) If the flaps extend with the alternate system, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-51 TASKS 869-871

D633W103-ARO

Page 298.101
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (b) If the flaps do not extend with the alternate system, then do this wiring check between the Flaps Extend Relay, K27004 and the Flap Limit switch, S27004:



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- 1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- 2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- 3) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- 4) Disconnect the electrical connector, DS27004 from the flap limit switch, S27004 in the right wheel well.
- 5) Do a wiring check between these pins of connector D11039P on the P110 panel and connector DS27004 at the Flap Limit Switch, S27004 (WDM 27-51-17):

D11039P	DS27004
pin 5	pin 2

- 6) If you find a problem with the wiring, then repair the wiring.
- 7) Connect the electrical connector, DS27004 to the flap limit switch, S27004 in the right wheel well.
- 8) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- 9) Use the alternate system to extend the flaps. To extend them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.

EFFECTIVITY
ARO ALL

27-51 TASK 871



777-200/300 FAULT ISOLATION MANUAL

- a) If the flaps extend with the alternate system, then you corrected the fault.
- 10) If you do not find a problem with the wiring, then continue.
- (3) Replace the ALTN FLAPS CONTROL switch, S27053 on the P10 control stand (WDM 27-51-17).
 - (a) Use the alternate system to extend the flaps. To extend them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - 1) If the flaps extend with the alternate system, then you corrected the fault.
 - 2) If the flaps do not extend with the alternate system, then continue.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (6) Replace the flap limit switch, S27004.

These are the tasks:

Flap Limit Switch Removal, AMM TASK 27-51-32-000-801,

Flap Limit Switch Installation, AMM TASK 27-51-32-400-801.

 - (a) Use the alternate system to extend the flaps. To extend them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - 1) If the flaps extend with the alternate system, then you corrected the fault.
 - 2) If the flaps do not extend with the alternate system, then continue.
- (7) Do this check of the wiring between the Alternate Flaps Control Switch, S27053 and the Flaps Limit Switch, S27004:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (b) Disconnect the electrical connector, DS27053 from the Alternate Flap Control switch, S27053 in the control stand.
- (c) Disconnect the electrical connector, DS27004 from the flap limit switch, S27004 in the right wheel well.

EFFECTIVITY
ARO ALL

27-51 TASK 871

D633W103-ARO

Page 298.103
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins of connector DS27053 in the P10 control stand panel and connector DS27004 at the Flap Limit Switch, S27004 (WDM 27-51-17):

DS27053	DS27004
pin G	pin 3

- (e) If you find a problem with the wiring, then repair the wiring.
- (f) Connect the electrical connector, DS27053 to the Alternate Flap Control switch, S27053 in the control stand.
- (g) Connect the electrical connector, DS27004 to the flap limit switch, S27004 in the right wheel well.
- (h) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

- (i) Use the alternate system to extend the flaps. To extend them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- 1) If the flaps extend with the alternate system, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (8) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

872. Alternate Flap System Problems - Fault Isolation

A. Fault Isolation Procedure

NOTE: The flaps will not extend past the 20-unit position with alternate control.

- (1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

- (a) If the circuit breakers were not closed, use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.

EFFECTIVITY
ARO ALL

27-51 TASKS 871-872

D633W103-ARO

Page 298.104
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the flaps operate with the alternate system, then you corrected the fault.
- (b) If the circuit breakers were closed, or if the flaps do not operate with alternate control, then continue.
- (2) Do a check of the ALTN FLAPS ARM switch, S27052:
 - (a) Press the ALTN FLAPS ARM switch on the P10 control stand to arm the alternate control system.
 - (b) Look at the FLAP/SLAT maintenance page on EICAS.
 - (c) If the STATUS for FSEU 1 and FSEU 2 is not ALT ARM, then replace the ALTN FLAPS ARM switch, S27052 (WDM 27-51-17).
 - 1) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - a) If the flaps operate with the alternate system, then you corrected the fault.
 - b) If the flaps do not operate with the alternate system, then continue.
 - (d) If the STATUS for FSEU 1 is not ALT ARM, then do this wiring check between the ALTN FLAPS ARM switch, S27052 and FSEU 1, M27001:
 - 1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 2) Disconnect electrical connector DS27052 from the ALTN FLAPS ARM switch, S27052 on the control stand.
- 3) Remove the FSEU 1, M27001 from the E1-6 shelf.
- 4) Do a wiring check between these pins of connector DM27001AC on the E1-6 shelf and DS27052 on the control stand (WDM 27-51-17):

DM27001AC	DS27052
pin B3	pin 5

- 5) If you find a problem with the wiring, then repair the wiring.
- 6) Re-connect electrical connector, DS27052 to the ALTN FLAPS ARM switch.
- 7) Re-install FSEU 1, M27001 on the E1-6 shelf.

EFFECTIVITY
ARO ALL

27-51 TASK 872

D633W103-ARO

Page 298.105
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 8) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 9) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- a) If the flaps operate with the alternate system, then you corrected the fault.
- 10) If you do not find a problem with the wiring, then continue.
- (e) If the STATUS for FSEU 2 is not ALT ARM, then do this wiring check between the ALTN FLAPS ARM switch, S27052 and FSEU 2, M27002:
- 1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 2) Disconnect electrical connector DS27052 from the ALTN FLAPS ARM switch, S27052 on the control stand.
- 3) Remove the FSEU 2, M27002 from the E4-1 shelf.
- 4) Do a wiring check between these pins of connector DM27002AC on the E4-1 shelf and DS27052 on the control stand (WDM 27-51-17):

DM27002AC	DS27052
pin B3	pin 8

- 5) If you find a problem with the wiring, then repair the wiring.
- 6) Re-connect electrical connector, DS27052 to the ALTN FLAPS ARM switch.
- 7) Re-install FSEU 2, M27002 on the E4-1 shelf.

EFFECTIVITY
ARO ALL

27-51 TASK 872

D633W103-ARO

Page 298.106
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 8) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 9) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- a) If the flaps operate with the alternate system, then you corrected the fault.
- 10) If you do not find a problem with the wiring, then continue.
- (3) Do this check to see if the flap drive system is locked:
- (a) Use the primary system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- (b) If the flaps do not operate with the primary system, then the flap drive system is locked.
- (c) If the flaps operate with the primary system, then the flap drive system is not locked.
- (4) If the flap drive system is locked, do these steps:



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (d) Disconnect the torque tubes inboard of the flap position sensor gearboxes.

EFFECTIVITY
ARO ALL

27-51 TASK 872

D633W103-ARO

Page 298.107
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 1200 POUND-INCHES TORQUE OR FASTER THAN 400 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.



DO NOT LET THE BALLSCREW NUTS HIT THE UPSTOPS OR DOWNSTOPS. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE POSITION SENSOR GEARBOX.

- (e) Use the manual drive on the flap position sensor gearboxes to extend and retract the flaps on each wing. To manually operate the flaps, do this task: Trailing Edge Flap System Manual Operation, AMM TASK 27-51-00-980-801.
- (f) If you can extend and retract the flaps on each wing, do these steps:
 - 1) Do this task: Flap Electric Motor Removal, AMM TASK 27-51-34-000-801.
 - 2) Use an T.E. flap torque tube coupling drive adapter, SPL-1704 to turn the flap power drive unit (PDU) in the extend and retract directions.
 - 3) If you can turn the PDU, install a new flap electric motor, B27002. To install it, do this task: Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
 - 4) If you cannot turn the PDU, do this task: Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801.
 - 5) Use an T.E. flap torque tube coupling drive adapter, SPL-1704 to turn the flap power drive unit (PDU) in the extend and retract directions.
 - 6) If you cannot turn the PDU, replace the flap power drive unit (PDU). These are the tasks:
 - Flap Power Drive Unit (PDU) Removal, AMM TASK 27-51-31-000-801
 - Flap Power Drive Unit (PDU) Installation, AMM TASK 27-51-31-400-801
 - 7) Try to turn the output shaft on the flap hydraulic motor.
 - 8) If you can turn the output shaft on the hydraulic motor, replace the flap primary control valve, V27004. These are the tasks:
 - Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801
 - 9) If you cannot turn the output shaft on the flap hydraulic motor, install a new flap hydraulic motor. To install it, do this task: Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
 - 10) If it is necessary, re-install the flap hydraulic motor. To install it, do this task: Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
 - 11) If it is necessary, re-install the flap electric motor. To install it, do this task: Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
- (g) If you cannot extend and retract the flaps on one of the wings, find where the flap drive system is locked:
 - 1) Open the access panels on the applicable wing:

EFFECTIVITY
ARO ALL

27-51 TASK 872

D633W103-ARO

Page 298.108
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the flap drive system is locked on the left wing, open

<u>Number</u>	<u>Name/Location</u>
573DR	Flap Support Fairing No. 3 Panel
576CL	Flap Support Fairing No. 2 Panel
577DL	Flap Support Fairing No. 1 Panel

- b) If the flap drive system is locked on the right wing, open

<u>Number</u>	<u>Name/Location</u>
673DL	Flap Support Fairing No. 6 Panel
676CR	Flap Support Fairing No. 7 Panel
677DR	Flap Support Fairing No. 8 Panel

- 2) Look at the torque trip indicators on the transmissions on the applicable wing.
- 3) If the torque trip indicator shows tripped for a transmission, do these steps:
- Disconnect the torque tubes from the applicable transmission.
 - Try to turn the torque tube couplings on the applicable transmission.
 - If you cannot turn the transmission, disconnect the ballscrew from the transmission.
 - Try to turn the torque tube couplings on the transmission.
 - If you cannot turn an inboard flap inboard transmission, replace the applicable transmission. These are the tasks:
 - Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801
 - Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801
 - If you cannot turn an inboard flap outboard transmission, replace the applicable transmission. These are the tasks:
 - Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802
 - Inboard Flap Outboard Transmission Installation, AMM TASK 27-51-15-400-802
 - If you cannot turn an outboard flap inboard transmission, replace the applicable transmission. These are the tasks:
 - Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801
 - Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801
 - If you cannot turn an outboard flap outboard transmission, replace the applicable transmission. These are the tasks:
 - Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802
 - Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801
 - Try to turn the ballscrew on the applicable transmission.
 - If you cannot turn the ballscrew for the inboard flap inboard transmission, replace the applicable ballscrew. These are the tasks:

EFFECTIVITY
ARO ALL

27-51 TASK 872

D633W103-ARO

Page 298.109
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-801
 - Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-801
- k) If you cannot turn the ballscrew for the inboard flap outboard transmission, replace the applicable ballscrew. These are the tasks:
- Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-802
 - Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-802
- l) If you cannot turn the ballscrew for the outboard flap inboard transmission, replace the applicable ballscrew. These are the tasks:
- Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-802
 - Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-802
- m) If you cannot turn the ballscrew for the outboard flap outboard transmission, replace the applicable ballscrew. These are the tasks:
- Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801
 - Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-801
- n) If it is necessary, connect the ballscrew to the transmission.
- o) Connect the torque tubes to the applicable transmission.
- p) Reset the torque trip indicator on the applicable transmission.
- 4) If none of the torque trip indicators show, or if you did not find a problem with a transmission or ballscrew, examine the other gearboxes for the flap drive system on the applicable wing:
- a) Disconnect the torque tubes from the applicable gearbox.
 - b) If you cannot manually turn the applicable gearbox, replace the gearbox.
 - c) Connect the torque tubes to the applicable gearbox.
- 5) Close the access panels on the applicable wing:
- a) On the left wing:

<u>Number</u>	<u>Name/Location</u>
573DR	Flap Support Fairing No. 3 Panel
576CL	Flap Support Fairing No. 2 Panel
577DL	Flap Support Fairing No. 1 Panel
 - b) On the right wing:

<u>Number</u>	<u>Name/Location</u>
673DL	Flap Support Fairing No. 6 Panel
676CR	Flap Support Fairing No. 7 Panel
677DR	Flap Support Fairing No. 8 Panel
- (h) Connect the torque tubes to the flap position sensor gearboxes.

EFFECTIVITY
ARO ALL

27-51 TASK 872

D633W103-ARO

Page 298.110
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (i) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (j) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (k) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- 1) If the flaps operate with the alternate system, then you corrected the fault.
 - 2) If the flaps do not operate with alternate control, then continue.
- (5) If the flap drive system is not locked, use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.
- (6) If the flaps do not operate with the secondary system, then replace the flap electric motor, B27002. These are the tasks:
- Flap Electric Motor Removal, AMM TASK 27-51-34-000-801
 - Flap Electric Motor Installation, AMM TASK 27-51-34-400-801
- (a) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- 1) If the flaps operate with the alternate system, then you corrected the fault.
 - 2) If the flaps do not operate with alternate control, then continue.
- (7) If the flaps do not extend with the secondary system, then replace the Flaps Extend Relay, K27004 on the P110 Panel (WDM 27-51-17).
- (a) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- 1) If the flaps operate with the alternate system, then you corrected the fault.
 - 2) If the flaps do not operate with alternate control, then continue.
- (8) If the flaps do not retract with the secondary system, then replace the Flaps Retract Relay, K27006 on the P110 Panel (WDM 27-51-17).
- (a) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- 1) If the flaps operate with the alternate system, then you corrected the fault.
 - 2) If the flaps do not operate with alternate control, then continue.
- (9) Replace the ALTN FLAPS ARM Switch, S27052 on the P10 control stand (WDM 27-51-17).
- (a) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- 1) If the flaps operate with the alternate system, then you corrected the fault.
 - 2) If the flaps do not operate with alternate control, then continue.

EFFECTIVITY
ARO ALL

27-51 TASK 872

D633W103-ARO

Page 298.111
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (10) Replace the ALTN FLAPS CONTROL Switch, S27053 on the P10 control stand (WDM 27-51-17).
- (a) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- 1) If the flaps operate with the alternate system, then you corrected the fault.
- 2) If the flaps do not operate with alternate control, then continue.
- (11) Replace the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
- (a) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- 1) If the flaps operate with the alternate system, then you corrected the fault.
- 2) If the flaps do not operate with alternate control, then continue.
- (12) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (13) Do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and the ALTN FLAPS ARM switch, S27052:
- (a) Disconnect electrical connector DS27052 from the ALTN FLAPS ARM switch, S27052 on the control stand.
- (b) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-17).
- (c) Do a wiring check between these pins of connector DS27052 on the control stand connector DK27002 on the P110 panel (WDM 27-51-17):

DS27052	DK27002
pin 11	pin X2

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-connect electrical connector, DS27052 to the ALTN FLAPS ARM switch.
- 3) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
- 4) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- 5) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- a) If the flaps operate with the alternate system, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (14) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-51 TASK 872

D633W103-ARO

Page 298.112
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (15) Open this circuit breaker and install safety tag:

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (16) Do this check of the wiring between the Flaps Extend Relay, K27004 and the ALTN FLAPS CONTROL switch, S27053:

- Remove the Flaps Extend Relay, K27004 from the P110 panel (WDM 27-51-17).
- Disconnect electrical connector DS27053 from the ALTN FLAPS CONTROL switch, S27053.
- Do a wiring check between these pins of connector DS27053 in the control stand and connector DK27004 on the P110 panel (WDM 27-51-17):

DS27053	DK27004
pin G	pin X2

- If you find a problem with the wiring, then do these steps:
 - Repair the wiring.
 - Re-connect connector DS27053.
 - Re-install the Flaps Extend Relay, K27004 on the P110 panel.
 - Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - If the flaps operate with the alternate system, then you corrected the fault.
 - If you do not find a problem with the wiring, then continue.
- (17) Re-install the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-17).
- (18) Do this check of the wiring between the Flaps Retract Relay, K27006 and the ALTN FLAPS CONTROL switch, S27053:
- Remove the Flaps Retract Relay, K27006 from the P110 panel (WDM 27-51-17).
 - Do a wiring check between these pins of connector DS27053 in the control stand and connector DK27006 on the P110 panel (WDM 27-51-17):

DS27053	DK27006
pin J	pin X2

- If you find a problem with the wiring, then do these steps:
 - Repair the wiring.

EFFECTIVITY
ARO ALL

27-51 TASK 872

D633W103-ARO

Page 298.113
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 2) Re-connect connector DS27053.
- 3) Re-install the Flaps Retract Relay, K27006 on the P110 panel.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- 5) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - a) If the flaps operate with the alternate system, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (19) Do this check of the wiring between the Flaps Retract Relay, K27006 and the flap electric motor, B27002:



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) Disconnect the electrical connector DB27002 from the flap electric motor, B27002 in the left wheel well.
- (d) Do a wiring check between these pins of connector DB27002 on the flap electric motor and connector DK27006 on the P110 panel (WDM 27-51-18):

DB27002

pin 1
pin 2
pin 3

DK27006

pin A2
pin B2
pin C2

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect electrical connector DB27002 to the flap electric motor.
 - 3) Re-install the Flaps Retract Relay, K27006 on the P110 panel.

EFFECTIVITY
ARO ALL

27-51 TASK 872

D633W103-ARO

Page 298.114
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- 5) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- a) If the flaps operate with the alternate system, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (20) Re-install the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-17).
- (21) Do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and the flap electric motor, B27002:
- (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel.
- (b) Do a wiring check between these pins of connector DB27002 on the flap electric motor and connector DK27002 on the P110 panel (WDM 27-51-17):

DB27002	DK27002
pin 6	pin B2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect electrical connector DB27002 to the flap electric motor.
 - 3) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- 5) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- a) If the flaps operate with the alternate system, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (22) Connect the electrical connector DB27002 to the flap electric motor, B27002 in the right wheel well.
- (23) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-51 TASK 872

D633W103-ARO

Page 298.115
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (24) Do this check of the wiring between the Flaps Extend Relay, K27004 and the Flaps Retract Relay, K27006:
- (a) Remove the Flaps Extend Relay, K27004 from the P110 panel (WDM 27-51-17).
 - (b) Remove the Flaps Retract Relay, K27006 from the P110 panel (WDM 27-51-17).
 - (c) Do a wiring check between these pins of connector DK27004 on and connector DK27006 on the P110 panel (WDM 27-51-17):

DK27004		DK27006	
pin A1	.....	pin A3	
pin A3	.....	pin A1	
pin B1	.....	pin B3	
pin B3	.....	pin C1	
pin C1	.....	pin C3	
pin C3	.....	pin B1	

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the Flaps Extend Relay, K27004 on the P110 panel.
 - 3) Re-install the Flaps Retract Relay, K27006 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- 5) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - a) If the flaps operate with the alternate system, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (25) Re-install the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-17).
- (26) Re-install the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-17).
- (27) Do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and the flap primary control valve, V27004:
 - (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-18).
 - (b) Disconnect electrical connector DV27004A from the flap primary control valve, V27004 in the right main wheel well.
 - (c) Do a wiring check between these pins of connector DK27002 on the P110 panel and connector DV27004A on the flap primary control valve (WDM 27-51-17):

DK27002		DV27004A	
pin A2	.....	pin 16	

EFFECTIVITY
ARO ALL

27-51 TASK 872

D633W103-ARO

Page 298.116
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 3) Re-connect connector DV27004A to the flap primary control valve, V27004.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- 5) Use the alternate system to extend or retract the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - a) If the flaps operate with the alternate system, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (28) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— END OF TASK —————

873. Alternate Flaps Retract Problems - Fault Isolation

A. Fault Isolation Procedure

- (1) Use the secondary system to retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.
- (2) If the flaps do not retract with the secondary system, then replace the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-18).
 - (a) Use the alternate system to retract the flaps. To retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - 1) If the flaps retract with the alternate system, then you corrected the fault.
 - (b) If the flaps do not retract with the alternate system, then do this wiring check between the Flaps Retract Relay, K27006 and the Flap Limit switch, S27004:



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- 1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-51 TASKS 872-873

D633W103-ARO

Page 298.117
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- 2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- 3) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- 4) Disconnect the electrical connector, DS27004 from the flap limit switch, S27004 in the right wheel well.
- 5) Do a wiring check between these pins of connector D11039P on the P110 panel and connector DS27004 at the Flap Limit Switch, S27004 (WDM 27-51-17):

D11039P	DS27004
pin 6	pin 5

- 6) If you find a problem with the wiring, then repair the wiring.
- 7) Connect the electrical connector, DS27004 to the flap limit switch, S27004 in the right wheel well.
- 8) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- 9) Use the alternate system to retract the flaps. To retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - a) If the flaps retract with the alternate system, then you corrected the fault.
 - 10) If you do not find a problem with the wiring, then continue.
- (3) Replace the ALTN FLAPS CONTROL switch, S27053 on the P10 control stand (WDM 27-51-17).
- (a) Use the alternate system to retract the flaps. To retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - 1) If the flaps retract with the alternate system, then you corrected the fault.
 - 2) If the flaps do not retract with the alternate system, then continue.

EFFECTIVITY
ARO ALL

27-51 TASK 873

D633W103-ARO

Page 298.118
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
(6) Replace the flap limit switch, S27004.

These are the tasks:

Flap Limit Switch Removal, AMM TASK 27-51-32-000-801,

Flap Limit Switch Installation, AMM TASK 27-51-32-400-801.

- (a) Use the alternate system to retract the flaps. To retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- 1) If the flaps retract with the alternate system, then you corrected the fault.
 - 2) If the flaps do not retract with the alternate system, then continue.
- (7) Do this check of the wiring between the Alternate Flaps Control Switch, S27053 and the Flaps Limit Switch, S27004:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (b) Disconnect the electrical connector, DS27053 from the Alternate Flap Control switch, S27053 in the control stand.
- (c) Disconnect the electrical connector, DS27004 from the flap limit switch, S27004 in the right wheel well.
- (d) Do a wiring check between these pins of connector DS27053 in the P10 control stand panel and connector DS27004 at the Flap Limit Switch, S27004 (WDM 27-51-17):

DS27053	DS27004
pin J	pin 6

- (e) If you find a problem with the wiring, then repair the wiring.
- (f) Connect the electrical connector, DS27053 to the Alternate Flap Control switch, S27053 in the control stand.

EFFECTIVITY
ARO ALL

27-51 TASK 873

D633W103-ARO

Page 298.119
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (g) Connect the electrical connector, DS27004 to the flap limit switch, S27004 in the right wheel well.
- (h) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (i) Use the alternate system to retract the flaps. To retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - 1) If the flaps retract with the alternate system, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (8) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

END OF TASK

874. Airplane Type Program Pin Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21301.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check to see if the fault is in FSEU 1:
 - (a) Open these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Exchange FSEU 1, M27001 (E1-6 shelf) with FSEU 2, M27002 (E4-1 shelf).

EFFECTIVITY
ARO ALL

27-51 TASKS 873-874

D633W103-ARO

Page 298.120
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (d) If the MAT Existing Faults display shows ACTIVE for maintenance message 27-21302, then do these steps:

- 1) Replace FSEU 2 (this is the FSEU initially installed in the position of FSEU 1).

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- 2) If the MAT Existing Faults display shows NOT ACTIVE for maintenance message 27-21302 (or if the message does not show), then you corrected the fault.

- (e) If the MAT Existing Faults display shows ACTIVE for maintenance message 27-21301, then continue.

- (2) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (3) Remove FSEU 1, M27001 from the E1-6 shelf.

- (4) Do this check of the wiring for the program pins for FSEU 1, M27001:

- (a) Do a check to make sure these pins at the E1-6 shelf are connected to ground (WDM 27-51-11):

- 1) Connector DM27001AA, Pin J1
- 2) Connector DM27001AA, Pin K2
- 3) Connector DM27001AC, Pin A1
- 4) Connector DM27001AC, Pin A8

- (b) Do a check to make sure these pins at the E1-6 shelf are not connected to ground (WDM 27-50-09):

- 1) Connector DM27001AA, Pin K1
- 2) Connector DM27001AA, Pin K3
- 3) Connector DM27001AA, Pin K4
- 4) Connector DM27001AA, Pin K5
- 5) Connector DM27001AA, Pin K6
- 6) Connector DM27001AA, Pin K7

EFFECTIVITY
ARO ALL

27-51 TASK 874

D633W103-ARO

Page 298.121
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 7) Connector DM27001AA, Pin K8
 - 8) Connector DM27001AC, Pin A2
 - 9) Connector DM27001AC, Pin A3
 - 10) Connector DM27001AC, Pin A4
 - 11) Connector DM27001AC, Pin A5
 - 12) Connector DM27001AC, Pin A6
 - 13) Connector DM27001AC, Pin A7
 - 14) Connector DM27001AC, Pin B1
- (c) If you find a problem with the wiring, then repair the wiring.
- (5) Re-install FSEU 1, M27001 on the E1-6 shelf.
- (6) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (7) If the MAT Existing Faults display does not show ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

———— **END OF TASK** ————

875. Trailing Edge Flaps Slow Operation Problems - Fault Isolation

A. Initial Evaluation

- (1) If the trailing edge flaps and leading edge slats are not in the fully retracted position, retract them. To retract the flaps and slats, do this task: Retract the Trailing Edge Flaps, AMM TASK 27-51-00-860-805.
- (2) Record the time necessary to extend the leading edge slats and the trailing edge flaps with the primary system:
 - (a) Use the primary system to extend the flaps and the slats to the fully extended position. To extend them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (b) If the time necessary to fully extend the trailing edge flaps is more than 1 minute and the time necessary to fully extend the leading edge slats is more than 45 seconds, then do the Fault Isolation Procedure below.
 - (c) If the time necessary to fully extend the trailing edge flaps is less than 1 minute and the time necessary to fully extend the leading edge slats is less than 45 seconds, then the system is operating correctly.
 - (d) If the time necessary to fully extend the leading slats is less than 45 seconds and the time necessary to fully extend the trailing edge flaps is more than 1 minute, then do the steps below to check the position of the low speed solenoid on the flap primary control valve.
 - (e) If the time necessary to fully extend the leading slats is more than 45 seconds and the time necessary to fully extend the trailing edge flaps is less than 1 minute, then do the steps in the following task to check the position of the low speed solenoid on the slat primary control valve: Leading Edge Slats Slow Operation Problems - Fault Isolation, 27-81 TASK 851.

EFFECTIVITY
ARO ALL

27-51 TASKS 874-875

D633W103-ARO

Page 298.122
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) It is also recommended to do the Flap Primary Control Valve Test, AMM TASK 27-51-05-740-801. If more than one failure is found then fault can possibly be with PCV. If only a single fault then T/S the fault shown on the MAT.

B. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the flap/slat priority valve. These are the tasks:
- Flap/Slat Priority Valve Removal, AMM TASK 27-51-06-000-801
 - Flap/Slat Priority Valve Installation, AMM TASK 27-51-06-400-801
- (a) Use the primary system to extend the flaps. To extend them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- 1) If the flaps extend in less than one minute, then you corrected the fault.
 - 2) If the flaps do not extend in less than one minute, then continue.
- (4) Do a check of the position of the low speed solenoid on the flap primary control valve:
- (a) Look at the FLAPS MODE indication on the FLAP/SLAT maintenance page on the MFD.
- (b) If the FLAPS MODE is LO SPD, then do this wiring check of the low speed solenoid on the flap primary control valve, V27004 in the right main wheel well:
- 1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 2) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- 3) Do a check of the resistance between pins 8 and 18 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-15):
- 4) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - a) Replace the Low Speed solenoid on the flap primary control valve, V27004. These are the tasks:

EFFECTIVITY
ARO ALL

27-51 TASK 875

D633W103-ARO

Page 298.123
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802
 -
 - Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802
- b) Do a check of the resistance between pins 8 and 18 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-15).
- NOTE: This does a check of the internal wiring on the primary control valve, V27004.
- c) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004. These are the tasks:
- Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801
- d) If the resistance is in the limits, then continue.
- 5) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
- 6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (c) If the FLAPS MODE is not LO SPD, then continue.
- (5) Do a check of the transmissions to see if a torque trip indicator has tripped:
- (a) Get access to the transmissions to check the torque trip indicators:
- 1) For the left wing, open the following access panels:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------------------|
| 573DR | Flap Support Fairing No. 3 Panel |
| 576CL | Flap Support Fairing No. 2 Panel |
| 577DL | Flap Support Fairing No. 1 Panel |
- 2) For the right wing, open the following panels:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------------------|
| 673DL | Flap Support Fairing No. 6 Panel |
| 676CR | Flap Support Fairing No. 7 Panel |
| 677DR | Flap Support Fairing No. 8 Panel |
- (b) Look at the torque trip indicators on the transmissions.
- (c) If the torque trip indicator shows tripped for a transmission, then do these steps:
- 1) Disconnect the torque tubes from the applicable transmission.
 - 2) Try to turn the torque tube couplings on the applicable transmission by hand.
 - 3) If you cannot turn the transmission, disconnect the ballscrew from the transmission.

EFFECTIVITY
ARO ALL

27-51 TASK 875

D633W103-ARO

Page 298.124
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Try to turn the torque tube couplings on the transmission.
- 5) If you cannot turn an inboard flap inboard transmission, replace the applicable transmission. These are the tasks:
 - Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801
 - Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801
- 6) If you cannot turn an inboard flap outboard transmission, replace the applicable transmission. These are the tasks:
 - Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802
 - Inboard Flap Outboard Transmission Installation, AMM TASK 27-51-15-400-802
- 7) If you cannot turn an outboard flap inboard transmission, replace the applicable transmission. These are the tasks:
 - Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801
 - Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801
- 8) If you cannot turn an outboard flap outboard transmission, replace the applicable transmission. These are the tasks:
 - Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802
 - Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801
- 9) Try to turn the ballscrew on the applicable transmission.
- 10) If you cannot turn the ballscrew for the inboard flap inboard transmission, then replace the applicable ballscrew. These are the tasks:
 - Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-801
 - Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-801
- 11) If you cannot turn the ballscrew for the inboard flap outboard transmission, replace the applicable ballscrew. These are the tasks:
 - Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-802
 - Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-802
- 12) If you cannot turn the ballscrew for the outboard flap inboard transmission, replace the applicable ballscrew. These are the tasks:
 - Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-802
 - Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-802
- 13) If you cannot turn the ballscrew for the outboard flap outboard transmission, replace the applicable ballscrew. These are the tasks:
 - Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801
 - Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-801
- 14) If it is necessary, connect the ballscrew to the transmission.

EFFECTIVITY
ARO ALL

27-51 TASK 875

D633W103-ARO

Page 298.125
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 15) Connect the torque tubes to the applicable transmission.
- 16) Reset the torque trip indicator on the applicable transmission.
- (d) Use the primary system to extend the flaps. To extend them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - 1) If the flaps extend in less than one minute, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (6) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

876. Flaps Move to 20 Units With Flap Lever at 15 Units - Fault Isolation

A. Initial Evaluation

- (1) Do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (2) Move the flap control lever to 15 units.
 - (a) If the FLAPS indication on EICAS momentarily shows a value greater than 15 units, then do the Fault Isolation Procedure below.
 - (b) If the FLAPS indication on EICAS does not momentarily show a value greater than 15 units, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) Do this task: Flap Primary Control Valve Test, AMM TASK 27-51-05-740-801.
 - (a) If the MAT shows FAILED when the test is completed, then do the FIM task for the maintenance message that shows with the test on the MAT.
 - (b) If the MAT shows PASSED when the test is completed, then continue.
- (2) Replace the low speed solenoid. Do these tasks: Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802 and Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
 - (a) Move the flap control lever to 15 units.
 - 1) If the FLAPS indication on EICAS does not momentarily show a value greater than 15 units, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-51 TASKS 875-876

D633W103-ARO

Page 298.126
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

801. Flap Primary Low Speed Solenoid Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20372.

B. Description

- (1) Flaps Primary Low Speed Solenoid circuit is open.

C. Possible Causes

- (1) Flaps Primary Low Speed Solenoid, V3
- (2) Flap Primary Control Valve, V27004
- (3) Wiring
- (4) Flap/Slat Electronics Unit (FSEU) 2, M27002

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-51-16
- (2) SSM 27-51-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

EFFECTIVITY
ARO ALL

27-52 TASK 801

D633W103-ARO

Page 201
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock pins are not installed on the Main and Nose Landing Gear, do this task:
Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
(3) Do a wiring check of the Low Speed Solenoid as follows:
(a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004B from the Flap Primary Control Valve, V27004 in the Right Wheel Well WDM 27-51-16.
(c) Do a Resistance check between pins 5 and 12 of connector DV27004B on the Flap Primary Control Valve, V27004 in the Right Wheel Well.
(d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then do these steps:
1) Replace the Low Speed Solenoid on the Flap Primary Control Valve, V27004.
These are the tasks:
• Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802
• Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802
2) Do a Resistance check between pins 5 and 12 of connector DV27004B on the Flap Primary Control Valve, V27004 again (WDM 27-51-16).

NOTE: This does a check of the internal wiring on the Flap Primary Control Valve, V27004.

- a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then replace the Flap Primary Control Valve, V27004. These are the tasks:
• Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
• Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801

EFFECTIVITY
ARO ALL

27-52 TASK 801

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 202
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- <1> Do the Repair Confirmation at the end of this task.
- b) If the Resistance is in the specified limits, then continue.
- (e) If the Resistance is in the specified limits, then continue.
- (4) Connect electrical connector DV27004B to the Flap Primary Control Valve, V27004, in the Right Wheel Well.
- (5) Do a check for 28V DC at FSEU 2 as follows:
- (a) Remove FSEU 2, M27002, from the E4-1 Shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (b) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

- (c) Do a check for 28V DC between pin F1 (+) on connector DM27002AC and structure ground (WDM 27-51-16).
- 1) If you do not find 28V DC at pin F1 on connector DM27002AC, then do these steps:
- a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

- b) At the P210 Power Management Panel, disconnect electrical connector D21026P.
- c) In the Right Wheel Well, disconnect electrical connector DV27004B from the Flap Primary Control Valve, V27004.
- d) Do a wiring check from the FSEU-2 connector DM27002AC to the Power Management Panel P210 connector D21026P as follows (WDM 27-51-16):

E4-1 Shelf	R Wheel Well
DM27002AC	DV27004B
pin F1	pin 12

R Wheel Well	P210 Panel
DV27004B	D21026P
pin 5	pin 13

- <1> If you find a problem with the wiring, then do these steps:
- <a> Repair the wiring.
- Re-connect electrical connector DV27004B.
- <c> Re-connect electrical connector D21026P.
- <d> Re-install FSEU 2, M27002. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- <e> Do the Repair Confirmation at the end of this task.
- <2> If you do not find a problem with the wiring, continue.

EFFECTIVITY
ARO ALL

27-52 TASK 801

D633W103-ARO

Page 203
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If you find 28V DC at pin F1 of connector DM27002AC, continue.
- (d) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 2 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

802. Flap Primary Circuit Breaker Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20382.

B. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: This step will cause the maintenance message to become INACTIVE. Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.
- (2) Move the flap control lever to a position which does not agree with the position of the flaps.
- (3) Move the flap control lever to agree with the position of the flaps.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-52 TASKS 801-802

D633W103-ARO

Page 204
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: This step will cause the maintenance message to become INACTIVE. Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (b) Move the flap control lever to a different position.
- (c) Move the flap control lever to agree with the position of the flaps.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

- (2) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: This step will cause the maintenance message to become INACTIVE. Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (b) Move the flap control lever to a different position.
- (c) Move the flap control lever to agree with the position of the flaps.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

803. Flap Primary Extend Solenoid Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20402.

B. Description

- (1) Flaps Primary Extend Solenoid circuit is open.

C. Possible Causes

- (1) Flaps Primary Extend Solenoid, V2
- (2) Flap Primary Control Valve, V27004
- (3) Wiring
- (4) FSEU 2, M27002

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-52 TASKS 802-803

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 205
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-51-16
- (2) SSM 27-51-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Extend Solenoid as follows (WDM 27-51-16):

EFFECTIVITY
ARO ALL

27-52 TASK 803

D633W103-ARO

Page 206
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004B from the Flap Primary Control Valve, V27004 in the Right Wheel Well.
- (c) Do a Resistance check between pins 11 and 15 of connector DV27004B on the Flap Primary Control Valve, V27004 in the Right Wheel Well.
- (d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then do these steps:
- 1) Replace the Extend Solenoid on the Flap Primary Control Valve, V27004. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802
 - 2) Do a Resistance check between pins 11 and 15 of connector DV27004B on the Flap Primary Control Valve, V27004 again (WDM 27-51-16).
- NOTE:** This does a check of the internal wiring on the Flap Primary Control Valve, V27004.
- a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoid), then replace the Flap Primary Control Valve, V27004. These are the tasks:
 - Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801<1> Do the Repair Confirmation at the end of this task.
 - b) If the Resistance is in the specified limits, then continue.
- (e) If the Resistance is the specified limits, then continue.

- (4) Connect electrical connector DV27004B to the Flap Primary Control Valve, V27004, in the Right Wheel Well.

- (5) Do a check for 28V DC at FSEU 2 as follows:

- (a) Remove FSEU 2, M27002, from the E4-1 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (b) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

- (c) Do a check for 28V DC between pin G1 (+) on connector DM27002AC and structure ground (WDM 27-51-16).
- 1) If you do not find 28V DC at pin G1 on connector DM27002AC, then do these steps:

EFFECTIVITY
ARO ALL

27-52 TASK 803

D633W103-ARO

Page 207
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

- b) At the P210 Power Management Panel, disconnect electrical connector D21026P.
- c) In the Right Wheel Well, disconnect electrical connector DV27004B from the Flap Primary Control Valve, V27004.
- d) Do a wiring check from the FSEU-2 connector DM27002AC to the Power Management Panel P210 connector D21026P as follows (WDM 27-51-16):

E4-1 Shelf	R Wheel Well
DM27002AC	DV27004B
pin G1	pin 11

R Wheel Well	P210 Panel
DV27004B	D21026P
pin 15	pin 13

<1> If you find a problem with the wiring, then do these steps:

- <a> Repair the wiring.
- Re-connect electrical connector DV27004B.
- <c> Re-connect electrical connector D21026P.
- <d> Re-install FSEU 2, M27002. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- <e> Do the Repair Confirmation at the end of this task.

<2> If you do not find a problem with the wiring, continue.

2) If you find 28V DC at pin G1 of connector DM27002AC, continue.

- (d) Replace FSEU 2, M27002. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 2 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

EFFECTIVITY
ARO ALL

27-52 TASK 803

D633W103-ARO

Page 208
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Use the Primary System to extend the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

804. Flap Primary Retract Solenoid Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20412.

B. Description

- (1) Flaps Primary Retract Solenoid circuit is open.

C. Possible Causes

- (1) Flaps Primary Retract Solenoid, V4
- (2) Flap Primary Control Valve, V27004
- (3) Wiring
- (4) FSEU 2, M27002

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-51-16
- (2) SSM 27-51-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.

EFFECTIVITY
ARO ALL

27-52 TASKS 803-804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 209
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Retract Solenoid as follows (WDM 27-51-16):
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004B from the Flap Primary Control Valve, V27004 in the Right Wheel Well.
- (c) Do a Resistance check between pins 4 and 14 of connector DV27004B on the Flap Primary Control Valve, V27004 in the Right Wheel Well.

EFFECTIVITY
ARO ALL

27-52 TASK 804

D633W103-ARO

Page 210
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then do these steps:
- 1) Replace the Retract Solenoid on the Flap Primary Control Valve, V27004. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802
 - 2) Do a Resistance check between pins 4 and 14 of connector DV27004B on the Flap Primary Control Valve, V27004 again (WDM 27-51-16).

NOTE: This does a check of the internal wiring on the Flap Primary Control Valve, V27004.

 - a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then replace the Flap Primary Control Valve, V27004. These are the tasks:
 - Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801

<1> Do the Repair Confirmation at the end of this task.
 - b) If the Resistance is in the specified limits, then continue.
- (e) If the Resistance is specified limits, then continue.
- (4) Connect electrical connector DV27004B to the Flap Primary Control Valve, V27004, in the Right Wheel Well.
- (5) Do a check for 28V DC at FSEU 2 as follows:
- (a) Remove FSEU 2, M27002, from the E4-1 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
 - (b) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

- (c) Do a check for 28V DC between pin D1 (+) on connector DM27002AC and structure ground (WDM 27-51-16).
- 1) If you do not find 28V DC at pin D1 on connector DM27002AC, then do these steps:
 - a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

- b) At the P210 Power Management Panel, disconnect electrical connector D21026P.
- c) In the Right Wheel Well, disconnect electrical connector DV27004B from the Flap Primary Control Valve, V27004.
- d) Do a wiring check from the FSEU-2 connector DM27002AC to the Power Management Panel P210 connector D21026P as follows (WDM 27-51-16):

EFFECTIVITY
ARO ALL

27-52 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 211
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

E4-1 Shelf
DM27002AC
pin D1

R Wheel Well
DV27004B
pin 4

R Wheel Well
DV27004B
pin 14

P210 Panel
D21026P
pin 13

- <1> If you find a problem with the wiring, then do these steps:
- <a> Repair the wiring.
 - Re-connect electrical connector DV27004B.
 - <c> Re-connect electrical connector D21026P.
 - <d> Re-install FSEU 2, M27002. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - <e> Do the Repair Confirmation at the end of this task.
- <2> If you do not find a problem with the wiring, continue.
- 2) If you find 28V DC at pin D1 of connector DM27002AC, continue.
- (d) Replace FSEU 2, M27002. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 2 is IN CONTROL

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-52 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 212
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

805. Flap Primary Shutoff Solenoid Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20422.

B. Description

- (1) Flaps Primary Shutoff Solenoid circuit is open.

C. Possible Causes

- (1) Flaps Primary Shutoff Solenoid, V1
- (2) Flap Primary Control Valve, V27004
- (3) Wiring
- (4) FSEU 2, M27002

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-51-16
- (2) SSM 27-51-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

EFFECTIVITY
ARO ALL

27-52 TASK 805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 213
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



WARNING

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
(3) Do a wiring check of the Shutoff Solenoid as follows (WDM 27-51-16):

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004A from the Flap Primary Control Valve, V27004 in the Right Wheel Well.
(c) Do a Resistance check between pins 12 and 14 of connector DV27004A on the Flap Primary Control Valve, V27004 in the Right Wheel Well.
(d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 ohms (for the 883 Series Solenoids), then do these steps:
- 1) Replace the Shutoff Solenoid on the Flap Primary Control Valve, V27004. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802
 - 2) Do a Resistance check between pins 12 and 14 of connector DV27004A on the Flap Primary Control Valve, V27004 again (WDM 27-51-16).

NOTE: This does a check of the internal wiring on the Flap Primary Control Valve, V27004.

- a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 ohms (for the 883 Series Solenoids), then replace the Flap Primary Control Valve, V27004. These are the tasks:
- Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801
 - Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801

EFFECTIVITY
ARO ALL

27-52 TASK 805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 214
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- <1> Do the Repair Confirmation at the end of this task.
- b) If the Resistance is in the specified limits, then continue.
- (e) If the Resistance is in the specified limits, then continue.
- (4) Connect electrical connector DV27004A to the Flap Primary Control Valve, V27004, in the Right Wheel Well.
- (5) Do a check for 28V DC at FSEU 2 as follows:
- (a) Remove FSEU 2, M27002, from the E4-1 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (b) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

- (c) Do a check for 28V DC between pin G5 (+) on connector DM27002AC and structure ground (WDM 27-51-16).
- 1) If you do not find 28V DC at pin G5 on connector DM27002AC, then do these steps:
- a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

- b) At the P210 Power Management Panel, disconnect electrical connector D21026P.
- c) In the Right Wheel Well, disconnect electrical connector DV27004A from the Flap Primary Control Valve, V27004.
- d) Do a wiring check from the FSEU-2 connector DM27002AC to the Power Management Panel P210 connector D21026P as follows (WDM 27-51-16):

E4-1 Shelf	R Wheel Well
DM27002AC	DV27004A
pin G5	pin 12

R Wheel Well	P210 Panel
DV27004A	D21026P
pin 14	pin 13

- <1> If you find a problem with the wiring, then do these steps:
- <a> Repair the wiring.
- Re-connect electrical connector DV27004A.
- <c> Re-connect electrical connector D21026P.
- <d> Re-install FSEU 2, M27002. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- <e> Do the Repair Confirmation at the end of this task.
- <2> If you do not find a problem with the wiring, continue.

EFFECTIVITY
ARO ALL

27-52 TASK 805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 215
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If you find 28V DC at pin G5 of connector DM27002AC, continue.
- (d) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 2 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



WARNING

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

806. Flap Uncommanded Motion Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20432.

B. Initial Evaluation

- (1) Make sure the position of the flap control lever agrees with the position of the flaps.
- (2) Make sure the ALTN FLAPS control switch is in the OFF position.
- (3) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: Use a single AC Motor Pump (ACMP) to supply power to the center system. This will cause the flaps to move more slowly if there is not an intermittent fault. If you use two ACMPs or an Air Driven Pump (ADP) the flaps will move further before the FSEUs stop them.

EFFECTIVITY
ARO ALL

27-52 TASKS 805-806

D633W103-ARO

Page 216
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS. THE FLAPS CAN MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure - Uncommanded Motion below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then continue.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: Use an Air Driven Pump (ADP) to move the flaps. This will allow the flaps to move at their usual rate.
- (7) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.
- (8) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure - Stops Out of Detent below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.
- (9) Do this ground test on the MAT for FSEU 2: Flap Primary Control Valve Test, AMM TASK 27-51-05-740-801.

C. Fault Isolation Procedure - Uncommanded Motion

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (2) Replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

EFFECTIVITY
ARO ALL

27-52 TASK 806

D633W103-ARO

Page 217
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (4) Use the primary system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (5) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

D. Fault Isolation Procedure - Stops Out of Detent

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Low Speed solenoid on the flap primary control valve, V27004 in the right main wheel well:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-52 TASK 806

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 218
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (c) Do a check of the resistance between pins 5 and 12 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):
- (d) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the Low Speed solenoid on the flap primary control valve, V27004.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
 - 2) Do a check of the resistance between pins 5 and 12 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-16).
NOTE: This does a check of the internal wiring on the primary control valve, V27004.
 - a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- (e) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (g) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (h) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

EFFECTIVITY
ARO ALL

27-52 TASK 806

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 219
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (i) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (j) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (4) Do this check of the adjustment of the flap position sensors:
 - (a) Make sure the trailing edge flaps are in the retracted position.
 - (b) Look at the FLAPS POS L1, R1, L2 and R2 indications on the FLAP/SLAT maintenance page on EICAS.
 - (c) If one of the flap position indications is not less than 12.03, then replace the applicable flap position sensor.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

NOTE: The flap position sensor for FLAP POS L1 and L2 are in the left wheel well. The flap position sensor for FLAP POS R1 and R2 are in the right wheel well.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (d) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (e) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (f) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

807. Flap Secondary System Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20442.

EFFECTIVITY
ARO ALL

27-52 TASKS 806-807

D633W103-ARO

Page 220
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (a) If the circuit breakers were not closed, use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the circuit breakers were closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do this check to see if the flap drive system is locked:
 - (a) Use the primary system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
 - (b) If the flaps do not operate with the primary system, then use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802
 - (c) If the flaps do not operate with the primary or the alternate system, then the flap drive system is locked.

EFFECTIVITY
ARO ALL

27-52 TASK 807

D633W103-ARO

Page 221
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) If the flaps operate with the primary system or the alternate system, then the flap drive system is not locked.
- (3) If the flap drive system is locked, then do these steps:



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (d) Disconnect the torque tubes inboard of the flap position sensor gearboxes.



CAUTION

DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 1200 POUND-INCHES TORQUE OR FASTER THAN 400 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.



CAUTION

DO NOT LET THE BALLSCREW NUTS HIT THE UPSTOPS OR DOWNSTOPS. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE POSITION SENSOR GEARBOX.

- (e) Use the manual drive on the flap position sensor gearboxes to extend and retract the flaps on each wing. To manually operate the flaps, do this task: Trailing Edge Flap System Manual Operation, AMM TASK 27-51-00-980-801.
- (f) If you can extend and retract the flaps on each wing, do these steps:
- 1) Do this task: Flap Electric Motor Removal, AMM TASK 27-51-34-000-801.
 - 2) Use an T.E. flap torque tube coupling drive adapter, SPL-1704 to turn the flap power drive unit (PDU) in the extend and retract directions.
 - 3) If you can turn the PDU, install a new flap electric motor, B27002. To install it, do this task: Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
 - 4) If you cannot turn the PDU, do this task: Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801.
 - 5) Use an T.E. flap torque tube coupling drive adapter, SPL-1704 to turn the flap power drive unit (PDU) in the extend and retract directions.
 - 6) If you cannot turn the PDU, replace the flap power drive unit (PDU).

These are the tasks:

Flap Power Drive Unit (PDU) Removal, AMM TASK 27-51-31-000-801,

EFFECTIVITY
ARO ALL

27-52 TASK 807

D633W103-ARO

Page 222
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap Power Drive Unit (PDU) Installation, AMM TASK 27-51-31-400-801.

- 7) Try to turn the output shaft on the flap hydraulic motor.
- 8) If you can turn the output shaft on the hydraulic motor, replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- 9) If you cannot turn the output shaft on the flap hydraulic motor, install a new flap hydraulic motor. To install it, do this task: Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
 - 10) If it is necessary, re-install the flap hydraulic motor. To install it, do this task: Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
 - 11) If it is necessary, re-install the flap electric motor. To install it, do this task: Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
- (g) If you cannot extend and retract the flaps on one of the wings, find where the flap drive system is locked:

- 1) Open the access panels on the applicable wing:

- a) If the flap drive system is locked on the left wing, open

<u>Number</u>	<u>Name/Location</u>

573DR	Flap Support Fairing No. 3 Panel
576CL	Flap Support Fairing No. 2 Panel
577DL	Flap Support Fairing No. 1 Panel

- b) If the flap drive system is locked on the right wing, open

<u>Number</u>	<u>Name/Location</u>

673DL	Flap Support Fairing No. 6 Panel
676CR	Flap Support Fairing No. 7 Panel
677DR	Flap Support Fairing No. 8 Panel

- 2) Look at the torque trip indicators on the transmissions on the applicable wing.
- 3) If the torque trip indicator shows tripped for a transmission, do these steps:
 - a) Disconnect the torque tubes from the applicable transmission.
 - b) Try to turn the torque tube couplings on the applicable transmission.
 - c) If you cannot turn the transmission, disconnect the ballscrew from the transmission.
 - d) Try to turn the torque tube couplings on the transmission.
 - e) If you cannot turn an inboard flap inboard transmission, replace the applicable transmission.

These are the tasks:

Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801,

Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801.

- f) If you cannot turn an inboard flap outboard transmission, replace the applicable transmission.

These are the tasks:

EFFECTIVITY
ARO ALL

27-52 TASK 807

D633W103-ARO

Page 223
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802,
Inboard Flap Outboard Transmission Installation, AMM
TASK 27-51-15-400-802.

- g) If you cannot turn an outboard flap inboard transmission, replace the applicable transmission.

These are the tasks:

Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801,
Outboard Flap Inboard Transmission Installation, AMM
TASK 27-51-25-400-801.

- h) If you cannot turn an outboard flap outboard transmission, replace the applicable transmission.

These are the tasks:

Outboard Flap Outboard Transmission Removal, AMM
TASK 27-51-25-000-802,

Outboard Flap Inboard Transmission Installation, AMM
TASK 27-51-25-400-801.

- i) Try to turn the ballscrew on the applicable transmission.

- j) If you cannot turn the ballscrew for the inboard flap inboard transmission, replace the applicable ballscrew.

These are the tasks:

Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM
TASK 27-51-16-000-801,

Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-16-400-801.

- k) If you cannot turn the ballscrew for the inboard flap outboard transmission, replace the applicable ballscrew.

These are the tasks:

Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM
TASK 27-51-16-000-802,

Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-16-400-802.

- l) If you cannot turn the ballscrew for the outboard flap inboard transmission, replace the applicable ballscrew.

These are the tasks:

Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM
TASK 27-51-26-000-802,

Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-26-400-802.

- m) If you cannot turn the ballscrew for the outboard flap outboard transmission, replace the applicable ballscrew.

These are the tasks:

Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM
TASK 27-51-26-000-801,

EFFECTIVITY
ARO ALL

27-52 TASK 807

D633W103-ARO

Page 224
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-26-400-801.

- n) If it is necessary, connect the ballscrew to the transmission.
- o) Connect the torque tubes to the applicable transmission.
- p) Reset the torque trip indicator on the applicable transmission.
- 4) If none of the torque trip indicators show, or if you did not find a problem with a transmission or ballscrew, examine the other gearboxes for the flap drive system on the applicable wing:
 - a) Disconnect the torque tubes from the applicable gearbox.
 - b) If you cannot manually turn the applicable gearbox, replace the gearbox.
 - c) Connect the torque tubes to the applicable gearbox.
- 5) Close the access panels on the applicable wing:
 - a) Close these access panels on the right wing:

<u>Number</u>	<u>Name/Location</u>
573DR	Flap Support Fairing No. 3 Panel
576CL	Flap Support Fairing No. 2 Panel
577DL	Flap Support Fairing No. 1 Panel
 - b) Close these access panels on the right wing:

<u>Number</u>	<u>Name/Location</u>
673DL	Flap Support Fairing No. 6 Panel
676CR	Flap Support Fairing No. 7 Panel
677DR	Flap Support Fairing No. 8 Panel
- (h) Connect the torque tubes to the flap position sensor gearboxes.
- (i) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (j) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
 - (k) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.
- NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 2) If the maintenance message shows on the MAT, then continue.
- (4) If the flap drive system is not locked, do a visual check of the torque trip indicators on the flap transmissions.
 - (5) If a torque trip indicator shows tripped, then do these steps on the applicable flap drive mechanism:

EFFECTIVITY
ARO ALL

27-52 TASK 807

D633W103-ARO

Page 225
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do a detailed visual inspection of the flap drive mechanism for misaligned, or damaged parts.
- (b) Lubricate the applicable transmission, ballscrew and gimbal:
 - 1) For an inboard flap, inboard transmission, do this task: Inboard Flap Inboard Transmission, Ballscrew and Gimbal Lubrication, AMM TASK 12-21-09-640-802.
 - 2) For an inboard flap, outboard transmission, do this task: Inboard Flap Outboard Transmission, Ballscrew and Gimbal Lubrication, AMM TASK 12-21-09-640-807.
 - 3) For an outboard flap, inboard transmission, do this task: Outboard Flap Inboard Transmission, Ballscrew and Gimbal Lubrication, AMM TASK 12-21-09-640-810.
 - 4) For an outboard flap, outboard transmission, do this task: Outboard Flap Outboard Transmission, Ballscrew and Gimbal Lubrication, AMM TASK 12-21-09-640-804.
- (c) Fill the applicable transmission with oil. To fill a transmission, do this task: Flap PDU and Electric Motor Servicing, AMM TASK 12-13-09-610-801.
- (d) Reset the torque trip indicator on the applicable transmission.
- (e) Use the primary system to retract and extend the flaps. To retract and extend them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
- (f) Use the secondary system to retract and extend the flaps. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.
 - 1) If the flaps operate with the primary and secondary systems, and if the maintenance message does not show on the MAT, then you corrected the fault.
 - 2) If the flaps do not operate, or if the maintenance message shows on the MAT, then continue.
- (6) Use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- (7) If the flaps do not operate with the alternate system, then do a check of the electrical power to the flap electric motor, B27002:

- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-52 TASK 807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 226
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (b) If the downlock pins are not installed on the main and nose landing gear, do this task:
Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (c) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
(d) Disconnect the electrical connector, DB27002 from the flap electric motor, B27002.
(e) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (f) Push the ALT FLAPS ARM switch on the control stand to arm the alternate control system.
(g) Do a check for 28 VDC between pin 6 of connector DB27002 and structure ground (WDM 27-51-17).
(h) Turn the ALT FLAPS control switch to the EXT position.
(i) With the ALT FLAPS control switch in the EXT position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27002 (WDM 27-51-18).
(j) Turn the ALT FLAPS control switch to the RET position.
(k) With the ALT FLAPS control switch in the RET position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27002 (WDM 27-51-18).
(l) If there is 115 VAC at pins 1, 2 and 3 and 28 VDC at pin 6 of connector DB27002, then replace the flap electric motor, B27002.

These are the tasks:

Flap Electric Motor Removal, AMM TASK 27-51-34-000-801,

Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.

- 1) Turn the ALT FLAPS control switch to the OFF position.
- 2) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.
- 3) Connect the electrical connector, DB27002 to the flap electric motor, B27002.

EFFECTIVITY
ARO ALL

27-52 TASK 807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 227
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 4) Use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - 5) If the flaps operate with the alternate system, then you corrected the fault.
- (m) If there is not 28 VDC at pin 6 of connector DB27002, then do this wiring check between the flap electric motor, B27002 and the Flaps Bypass/Clutch Relay, K27002 on the P110 panel:
- 1) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-17).
 - 2) Do a wiring check between these pins of connector DB27002 on the flap electric motor, B27002 and connector DK27002 on the P110 panel (WDM 27-51-17):

DB27002	DK27002
pin 6	pin B2

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 4) If you do not find a problem with the wiring, then install a new Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 5) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
 - 6) Use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - a) If the flaps operate with the alternate system, then you corrected the fault
- (n) If there is not 115 VAC at pins 1, 2 and 3 then do this wiring check between the flap electric motor, B27002 and the Flaps Retract Relay, K27006 on the P110 panel:
- 1) Remove the Flaps Retract Relay, K27006 from the P110 panel (WDM 27-51-18).
 - 2) Do a wiring check between these pins of connector DB27002 on the flap electric motor, B27002 and connector DK27006 on the P110 panel (WDM 27-51-18):

DB27002	DK27006
pin 1	pin A2
pin 2	pin B2
pin 3	pin C2

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Flaps Retract Relay, K27006 on the P110 panel.
- 4) If you do not find a problem with the wiring, then do this wiring check between the Flaps Retract Relay, K27006 and the Flaps Extend Relay K27004 on the P110 panel:
 - a) Remove the Flaps Extend Relay, K27004 from the P110 panel (WDM 27-51-18).
 - b) Do a wiring check between these pins of connector DK27004 and connector DK27006 on the P110 panel (WDM 27-51-18):

EFFECTIVITY
ARO ALL

27-52 TASK 807

D633W103-ARO

Page 228
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DK27004	DK27006
pin A1	pin A3
pin A3	pin A1
pin B1	pin B3
pin B3	pin C1
pin C1	pin C3
pin C3	pin B1

- c) If you find a problem with the wiring, then repair the wiring.
- d) Reinstall the Flaps Retract Relay, K27006 on the P110 panel.
- e) Reinstall the Flaps Extend Relay, K27004 on the P110 panel.
- 5) If you do not find a problem with the wiring, then install a new Flaps Extend Relay, K27004 and a new Flaps Retract Relay, K27006 on the P110 panel.
- 6) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
- 7) Use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - a) If the flaps operate with the alternate system, then you corrected the fault
- (o) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
- (p) Turn the ALT FLAPS control switch to the OFF position.
- (q) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (r) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (8) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (9) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-52 TASK 807

D633W103-ARO

Page 229
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (10) Remove FSEU 2, M27002 from the E4-1 shelf.
- (11) Do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and FSEU 2, M27002:
- (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-17).
- (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27002 on the P110 panel (WDM 27-51-17):

DM27002AA	DK27002
pin D5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 rack.
 - 3) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
- (12) Open this circuit breaker and install safety tag:

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (13) Do this check of the wiring between the Flaps Extend Relay, K27004 and FSEU 2, M27002:

EFFECTIVITY
ARO ALL

27-52 TASK 807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 230
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the Flaps Extend Relay, K27004 from the P110 panel (WDM 27-51-17).
- (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27004 on the P110 panel (WDM 27-51-17):

DM27002AA	DK27004
pin D1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 shelf.
 - 3) Re-install the Flaps Extend Relay, K27004 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-17).
- (14) Do this check of the wiring between the Flaps Retract Relay, K27006 and FSEU 2, M27002:
 - (a) Remove the Flaps Retract Relay, K27006 from the P110 panel (WDM 27-51-17).
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27006 on the P110 panel (WDM 27-51-17):

DM27002AA	DK27006
pin G1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-52 TASK 807

D633W103-ARO

Page 231
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install FSEU 2 on the E4-1 rack.
- 3) Re-install the Flaps Retract Relay, K27006 on the P110 panel.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-17).
- (15) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (16) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-52 TASK 807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 232
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (17) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

808. Flap Secondary System Auto Test Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20452.

B. Initial Evaluation

- (1) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (a) If the circuit breakers were not closed, use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breakers were closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do a check of the electrical power to the flap electric motor, B27002:

EFFECTIVITY
ARO ALL

27-52 TASKS 807-808

D633W103-ARO

Page 233
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (b) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (c) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
(d) Disconnect the electrical connector, DB27002 from the flap electric motor, B27002.
(e) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (f) Push the ALT FLAPS ARM switch on the control stand to arm the alternate control system.
(g) Do a check for 28 VDC between pin 6 of connector DB27002 and structure ground (WDM 27-51-17).
(h) Turn the ALT FLAPS control switch to the EXT position.
(i) With the ALT FLAPS control switch in the EXT position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27002 (WDM 27-51-18).
(j) Turn the ALT FLAPS control switch to the RET position.
(k) With the ALT FLAPS control switch in the RET position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27002 (WDM 27-51-18).
(l) If there is 115 VAC at pins 1, 2 and 3 and 28 VDC at pin 6 of connector DB27002, then replace the flap electric motor, B27002.

These are the tasks:

EFFECTIVITY
ARO ALL

27-52 TASK 808

D633W103-ARO

Page 234
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap Electric Motor Removal, AMM TASK 27-51-34-000-801,
Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.

- 1) Turn the ALT FLAPS control switch to the OFF position.
- 2) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.
- 3) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
- 4) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (m) If there is not 28 VDC at pin 6 of connector DB27002, then do this wiring check between the flap electric motor, B27002 and the Flaps Bypass/Clutch Relay, K27002 on the P110 panel:
- 1) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-17).
 - 2) Do a wiring check between these pins of connector DB27002 on the flap electric motor, B27002 and connector DK27002 on the P110 panel (WDM 27-51-17):

DB27002	DK27002
pin 6	pin B2

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
- 4) If you do not find a problem with the wiring, then install a new Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
- 5) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
- 6) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (n) If there is not 115 VAC at pins 1, 2 and 3 then do this wiring check between the flap electric motor, B27002 and the Flaps Retract Relay, K27006 on the P110 panel:
- 1) Remove the Flaps Retract Relay, K27006 from the P110 panel (WDM 27-51-18).
 - 2) Do a wiring check between these pins of connector DB27002 on the flap electric motor, B27002 and connector DK27006 on the P110 panel (WDM 27-51-18):

EFFECTIVITY
ARO ALL

27-52 TASK 808

D633W103-ARO

Page 235
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DB27002

pin 1	.....	pin A2
pin 2	.....	pin B2
pin 3	.....	pin C2

DK27006

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Flaps Retract Relay, K27006 on the P110 panel.
- 4) If you do not find a problem with the wiring, then do this wiring check between the Flaps Retract Relay, K27006 and the Flaps Extend Relay K27004 on the P110 panel:
 - a) Remove the Flaps Extend Relay, K27004 from the P110 panel (WDM 27-51-18).
 - b) Do a wiring check between these pins of connector DK27004 and connector DK27006 on the P110 panel (WDM 27-51-18):

DK27004

pin A1	.....	pin A3
pin A3	.....	pin A1
pin B1	.....	pin B3
pin B3	.....	pin C1
pin C1	.....	pin C3
pin C3	.....	pin B1

DK27006

- c) If you find a problem with the wiring, then repair the wiring.
 - d) Reinstall the Flaps Retract Relay, K27006 on the P110 panel.
 - e) Reinstall the Flaps Extend Relay, K27004 on the P110 panel.
- 5) If you do not find a problem with the wiring, then install a new Flaps Extend Relay, K27004 and a new Flaps Retract Relay, K27006 on the P110 panel.
- 6) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
- 7) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (o) Connect the electrical connector, DB27002 to the flap electric motor, B27002.
- (p) Turn the ALT FLAPS control switch to the OFF position.
- (q) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.

EFFECTIVITY
ARO ALL

27-52 TASK 808

D633W103-ARO

Page 236
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (r) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (3) Do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and FSEU 2, M27002:
- (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-17).
- (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27002 on the P110 panel (WDM 27-51-17):

DM27002AA

pin D5

DK27002

pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 rack.
 - 3) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the secondary system to extend to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
- (4) Open this circuit breaker and install safety tag:

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (5) Do this check of the wiring between the Flaps Extend Relay, K27004 and FSEU 2, M27002:

EFFECTIVITY
ARO ALL

27-52 TASK 808

D633W103-ARO

Page 237
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the Flaps Extend Relay, K27004 from the P110 panel (WDM 27-51-17).
- (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27004 on the P110 panel (WDM 27-51-17):

DM27002AA	DK27004
pin D1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 shelf.
 - 3) Re-install the Flaps Extend Relay, K27004 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-17).
- (6) Do this check of the wiring between the Flaps Retract Relay, K27006 and FSEU 2, M27002:
 - (a) Remove the Flaps Retract Relay, K27006 from the P110 panel (WDM 27-51-17).
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27006 on the P110 panel (WDM 27-51-17):

DM27002AA	DK27006
pin G1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-52 TASK 808

D633W103-ARO

Page 238
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install FSEU 2 on the E4-1 rack.
- 3) Re-install the Flaps Retract Relay, K27006 on the P110 panel.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-17).
- (7) Do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and the flap primary control valve, V27004:
 - (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-18).
 - (b) Disconnect electrical connector DV27004A from the flap primary control valve, V27004 in the right main wheel well.
- (8) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (9) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-52 TASK 808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 239
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (10) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

809. Sensor Excitation Circuit Breaker Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20252.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C24448	R 28V BUS
F	21	C27514	SNSR EXC 2

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, or if the circuit breakers were closed, then continue.

- (2) Replace this circuit breaker:

(WDM 27-51-12)

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

810. Sensor Excitation Voltage Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20262.

EFFECTIVITY
ARO ALL

27-52 TASKS 808-810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 240
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (2) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (4) Remove FSEU 2, M27002 from the E4-1 shelf.
- (5) Do a wiring check between this pin on connector DM27002AA at the E4-1 shelf and connector D4835P on the P205 integration panel (WDM 27-51-12):

DM27002AA	D4835P
pin A1	pin A10

- (a) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between this pin on connector DM27002AC at the E4-1 shelf and connector D4835P on the P205 integration panel (WDM 27-51-12):

EFFECTIVITY
ARO ALL

27-52 TASK 810

D633W103-ARO

Page 241
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AC

D4835P

pin K1 pin A10

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

———— **END OF TASK** ————

811. Flap Sensor Excitation Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20272.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do a check for maintenance messages for specific flap and slat system sensors.
 - (a) If you find other sensor maintenance messages, then do the applicable fault isolation task for that maintenance message.

NOTE: Look at the excitation wiring for the applicable sensor.

- (2) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (3) Remove FSEU 2, M27002 from the E4-1 shelf.
- (4) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

- (5) Do a check for 24 to 28 VAC between pins K1 and J1 on connector DM27002AC and pins A1 and B1 on connector DM27002AA at the E4-1 shelf (WDM 27-51-12).

EFFECTIVITY
ARO ALL

27-52 TASKS 810-811

D633W103-ARO

Page 242
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (6) If the voltage is not in the limit, do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DM27002AC and DM27002AA at the E4-1 shelf (WDM 27-51-12):

D21026P	DM27002AC
pin 31	pin K1

D21026P	DM27002AA
pin 31	A1

- (a) If you find a problem with the wiring, repair the wiring.
(b) If you do not find a problem with the wiring, replace this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

- (c) Re-install FSEU 2, M27002.
(d) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (e) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 2) If the maintenance message shows on the MAT, then continue.
- (7) If the voltage is in the limit, install a new FSEU 2. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

812. Left and Right Flap Position Sensor Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20692.

EFFECTIVITY
ARO ALL

27-52 TASKS 811-812

D633W103-ARO

Page 243
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Use the alternate system to retract the flaps to the retracted position. To retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- (3) Look at the FLAP POS L2 and FLAP POS R2 indications on the FLAP/SLAT maintenance page on EICAS.

- (a) Replace the flap position sensor for the flap position indication which is further from 10.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

NOTE: The flap position sensor for FLAP POS L2 is M27201 in the left wheel well. The flap position sensor for FLAP POS R2 is M27202 in the right wheel well.

- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Replace the other flap position sensor 2L, M27201 or 2R, M27202.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (6) Remove FSEU 2, M27002 from the E4-1 shelf.

EFFECTIVITY
ARO ALL

27-52 TASK 812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 244
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (7) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (8) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (9) Do a wiring check between FSEU 2, M27002 and flap position sensor 2R, M27202:
- (a) Disconnect connector DM27202 from flap position sensor 2R, M27202 in the right main wheel well.
 - (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DM27202 at the flap position sensor 2R, M27202 in the right wheel well (WDM 27-58-12):

DM27002AA	DM27202
pin A3	pin 1
pin B3	pin 2
pin D9	pin 3
pin D10	pin 4
pin E9	pin 5
pin E10	pin 6

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27202.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
 - (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
 - (e) Re-connect connector DM27202 to flap position sensor R2, M27202 in the right main wheel well.
- (10) Do a wiring check between FSEU 2, M27002 and flap position sensor 2L, M27201:

EFFECTIVITY
ARO ALL

27-52 TASK 812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 245
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Disconnect connector DM27201 from flap position sensor 2L, M27201 in the left main wheel well.
- (b) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DM27201 at the flap position sensor 2L, M27201 in the left wheel well (WDM 27-58-12):

DM27002AC	DM27201
pin K3	pin 1
pin J3	pin 2
pin G9	pin 3
pin G10	pin 4
pin F9	pin 5
pin F10	pin 6

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27201.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (d) Re-connect connector DM27201 to flap position sensor 2L, M27201 in the left main wheel well.
- (11) Re-install FSEU 2, M27002 on the E4-1 shelf.
- (12) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (13) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

813. Left Flap Position Sensor Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20702.

EFFECTIVITY
ARO ALL

27-52 TASKS 812-813

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 246
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the flap position sensor 2L, M27201 in the left wheel well.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (5) Remove FSEU 2, M27002 from the E4-1 shelf.
- (6) Do a wiring check between FSEU 2, M27002 and flap position sensor 2L, M27201:
 - (a) Disconnect connector DM27201 from flap position sensor 2L, M27201 in the left main wheel well.
 - (b) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DM27201 at the flap position sensor 2L, M27201 in the left wheel well (WDM 27-58-12):

EFFECTIVITY
ARO ALL

27-52 TASK 813

D633W103-ARO

Page 247
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AC	DM27201
pin K3	pin 1
pin J3	pin 2
pin G9	pin 3
pin G10	pin 4
pin F9	pin 5
pin F10	pin 6

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27201.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (7) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (a) Re-connect connector DM27201 to flap position sensor 2L, M27201 in the left main wheel well.
 - (b) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (c) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.

 WARNING	OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (8) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

814. Right Flap Position Sensor Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20712.

EFFECTIVITY
ARO ALL

27-52 TASKS 813-814

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 248
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the flap position sensor 2R, M27202 in the right wheel well.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (5) Remove FSEU 2, M27002 from the E4-1 shelf.
- (6) Do a wiring check between FSEU 2, M27002 and flap position sensor 2R, M27202:
 - (a) Disconnect connector DM27202 from flap position sensor 2R, M27202 in the right main wheel well.
 - (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DM27202 at the flap position sensor 2R, M27202 in the right wheel well (WDM 27-58-12):

EFFECTIVITY
ARO ALL

27-52 TASK 814

D633W103-ARO

Page 249
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AA	DM27202
pin A3	pin 1
pin B3	pin 2
pin D9	pin 3
pin D10	pin 4
pin E9	pin 5
pin E10	pin 6

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27202.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (7) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (a) Re-connect connector DM27202 to flap position sensor 2R, M27202 in the right main wheel well.
 - (b) Remove the safety tags and close these circuit breakers:
Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
- (c) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (8) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

815. FSEU 2 Fault Latched Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20722.

EFFECTIVITY
ARO ALL

27-52 TASKS 814-815

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 250
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the Maintenance Access Terminal (MAT) EXISTING FAULTS DISPLAY shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT EXISTING FAULTS DISPLAY does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (2) Do this ground test on the MAT: 27 High Lift System, Line Replaceable Unit (LRU) Replacement Test, FSEU 2.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, and the Engine Indication and Crew Alerting System (EICAS) message FLAP/SLAT CONTROL 2 does not show, then you corrected the fault.
- (3) An intermittent failure of the ALTN FLAPS ARM switch S27052 can also set mm 27-20721. Do a wiring check of the wiring between the ALTN FLAPS ARM switch, S27052 and FSEU 2, M27002.
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Remove the ALTN FLAPS ARM switch, S27052 from the control stand.
- (d) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and DS27052 at the ALTN FLAPS ARM switch, S27052 on the control stand (WDM 27-51-17):

DM27002AC	DS27052
pin B3	pin 8

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002 and ALTN FLAPS ARM switch, S27052.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (f) If you do not find a problem with the wiring, replace the ALTN FLAPS ARM switch, S27052 on the control stand (WDM 27-51-17).

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-52 TASK 815

D633W103-ARO

Page 251
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

816. FSEU 2 No Input from FSEU 1 on ARINC 429 Bus - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20922.

B. Initial Evaluation

- (1) If the MAT Existing Faults display shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: If you use a megohmmeter to do wiring checks on an ARINC 429 bus (or if you need the exact resistance of the bus wiring), first remove all the LRUs that are connected to the bus (use the WDM to tell which LRUs are on the bus). Then re-install the LRUs when you are done.

- (1) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (b) If the MAT Existing Faults display shows ACTIVE for the maintenance message, then continue.

- (2) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (b) If the MAT Existing Faults display shows ACTIVE for the maintenance message, then continue.

- (3) Do this check of the wiring:

- (a) Remove FSEU 1, M27001 from the E1-6 shelf.
- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins of connector DM27001AA on FSEU 1, M27001 and connector DM27002AC on FSEU 2, M27002 (WDM 27-51-11):

DM27002AC

pin C1
pin C2

DM27001AA

pin F3
pin F5

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
 - 3) Re-install FSEU 2, M27002 on the E4-1 shelf.

EFFECTIVITY
ARO ALL

27-52 TASK 816

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 252
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

817. **FSEU 1 ARINC 429 Bus to FSEU 2 Problems - Fault Isolation**

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20932.

B. Initial Evaluation

- (1) If the MAT Existing Faults display shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: If you use a megohmmeter to do wiring checks on an ARINC 429 bus (or if you need the exact resistance of the bus wiring), first remove all the LRUs that are connected to the bus (use the WDM to tell which LRUs are on the bus). Then re-install the LRUs when you are done.

- (1) Do this check of the wiring:
 - (a) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AA on FSEU 1, M27001 and connector DM27002AC on FSEU 2, M27002 (WDM 27-51-11):

DM27002AC

pin C1
pin C2

DM27001AA

pin F3
pin F5

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-install FSEU 2, M27002.
 - 4) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 5) If the MAT Existing Faults display shows ACTIVE for the maintenance message, then continue.
- (2) Re-install FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (3) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (a) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-52 TASKS 816-817

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 253
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

818. Flaps Relay K27002 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20752.

B. Initial Evaluation

- (1) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
 - (a) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do this wiring check:
 - (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27002 on the P110 panel (WDM 27-51-17):

DM27002AA	DK27002
pin D5	pin X2

- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002 on the E4-1 shelf.
 - 3) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 4) Use the secondary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

EFFECTIVITY
ARO ALL

27-52 TASK 818

D633W103-ARO

Page 254
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 5) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

819. Flaps Secondary Auto Test, Relay K27002 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20762.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
- (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel.
- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27002 on the P110 panel (WDM 27-51-17):

DM27002AA	DK27002
pin D5	pin X2

- (d) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-52 TASKS 818-819

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 255
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-install FSEU 2, M27002 on the E4-1 shelf.
- 3) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- 5) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

END OF TASK

820. Flaps Relay K27004 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20792.

B. Initial Evaluation

- (1) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-17).
 - (a) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do this wiring check:
 - (a) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector D11039P on the P110 panel (WDM 27-51-17):

DM27002AA	D11039P
pin D1	pin 5

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-52 TASKS 819-820

D633W103-ARO

Page 256
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install FSEU 2, M27002 on the E4-1 shelf.
- 3) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 4) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

821. Flaps Secondary Auto Test, Relay K27004 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20802.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove FSEU 2, M27002 from the E4-1 shelf.

EFFECTIVITY
ARO ALL

27-52 TASKS 820-821

D633W103-ARO

Page 257
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector D11039P on the P110 panel (WDM 27-51-17):

DM27002AA	D11039P
pin D1	pin 5

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002 on the E4-1 shelf.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

———— END OF TASK ————

822. Flaps Relay K27006 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20832.

B. Initial Evaluation

- (1) Use the secondary system to retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-17).
- (a) Use the secondary system to retract the flaps to another position. To retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do this wiring check:
- (a) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector D11039P on the P110 panel (WDM 27-51-17):

EFFECTIVITY
ARO ALL

27-52 TASKS 821-822

D633W103-ARO

Page 258
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AA

pin G1

D11039P

pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002 on the E4-1 shelf.
- (d) Use the secondary system to retract the flaps to another position. To retract them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

823. Flaps Secondary Auto Test, Relay K27006 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20842.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-52 TASKS 822-823

D633W103-ARO

Page 259
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector D11039P on the P110 panel (WDM 27-51-17):

DM27002AA	D11039P
pin G1	pin 6
 - (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002 on the E4-1 shelf.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

824. Flap Electric Motor Circuit Breaker Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-20162, 27-20172.

B. Fault Isolation Procedure

- (1) Close this circuit breaker:

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (2) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

825. Flap Secondary Relay Circuit Breaker Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-20202, 27-20212.

EFFECTIVITY
ARO ALL

27-52 TASKS 823-825

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 260
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Fault Isolation Procedure

- (1) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (2) Use the secondary system to extend the flaps to another position. To extend them, do this task: Trailing Edge Flap System Operation With Secondary Control, AMM TASK 27-51-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

826. Flap Lever Position Sensing Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20892.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check to see if the fault is in FSEU 2:

- (a) Open these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Exchange FSEU 2, M27002 (E4-1 shelf) with FSEU 1, M27001 (E1-6 shelf).
- (c) Close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-52 TASKS 825-826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 261
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (d) If the MAT Existing Faults display shows ACTIVE for maintenance message 27-20891, then do these steps:
- 1) Replace FSEU 1 (this is the FSEU initially installed in the position of FSEU 2).
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - 2) If the MAT Existing Faults display shows NOT ACTIVE for maintenance message 27-20891 (or if the message does not show), then you corrected the fault.
- (e) If the MAT Existing Faults display shows ACTIVE for maintenance message 27-20892, then continue.
- (2) Replace the flap lever position sensor, M27037 in the control stand.
These are the tasks:
Flap Lever Position Sensor Removal, AMM TASK 27-51-03-000-801,
Flap Lever Position Sensor Installation, AMM TASK 27-51-03-400-801.
- (a) If the MAT Existing Faults display shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the wiring between FSEU 2, M27002 and the flap lever position sensor, M27037:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Disconnect connectors DM27037C and DM27037D for the flap lever position sensor, M27037 in the control stand.
- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DM27037C at the flap lever position sensor, M27037 in the control stand (WDM 27-51-13):

DM27002AA		DM27037C
pin A2	.....	pin 1
pin B2	.....	pin 2
pin A9	.....	pin 4
pin B9	.....	pin 5

EFFECTIVITY
ARO ALL

27-52 TASK 826

D633W103-ARO

Page 262
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (e) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DM27037D at the flap lever position sensor, M27037 in the control stand (WDM 27-51-13):

DM27002AC	DM27037D
pin K2	pin 1
pin J2	pin 2
pin K9	pin 4
pin J9	pin 5

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connectors DM27037C and DM27037D.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT Existing Faults display does not show ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

827. Left to Right Flap Position Sensor Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21192.

B. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (2) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

EFFECTIVITY
ARO ALL

27-52 TASKS 826-827

D633W103-ARO

Page 263
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a visual check of the torque tubes between the flap power drive unit (PDU) and the flap position sensor gearboxes and the wiring for the flap position sensors in the left and right wheel wells.
 - (a) If you find a problem with the wiring, repair the wiring.
 - (b) If the torque tubes are broken or disconnected, connect or replace the torque tubes.

These are the tasks:

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

 - 1) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 2) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

 - a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (c) If you do not find a problem with the torque tubes, then continue.
- (4) Replace the flap position sensor 2L, M27201 in the left wheel well.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,
Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

 - (a) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-52 TASK 827

D633W103-ARO

Page 264
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (5) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (6) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (7) Remove FSEU 2, M27002 from the E4-1 shelf.
- (8) Do this check of the wiring between the flap position sensor 2L, M27201 and FSEU 2, M27002:
 - (a) Disconnect the connector DM27201 flap position sensor 2L, M27201 in the left wheel well.
 - (b) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DM27201 on flap position sensor 2L, M27201 (WDM 27-58-12):

DM27002AC	DM27201
pin K3	pin 1
pin J3	pin 2
pin G9	pin 3
pin G10	pin 4
pin F9	pin 5
pin F10	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Reconnect connector DM27201 to flap position sensor 2L, M27201 in the right main wheel well.
 - 3) Re-install FSEU 2 on the E4-1 shelf.

EFFECTIVITY
ARO ALL

27-52 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 265
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Reconnect connector DM27201 to flap position sensor 2L, M27201 in the left main wheel well.
- (9) Do this check of the wiring between the flap position sensor 2R, M27202 and FSEU 2, M27002:
- (a) Disconnect the connector DM27202 flap position sensor 2R, M27202 in the right wheel well.
- (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DM27202 on flap position sensor 2R, M27202 (WDM 27-58-12):

DM27002AA	DM27202
pin A3	pin 1
pin B3	pin 2
pin D9	pin 3
pin D10	pin 4
pin E9	pin 5
pin E10	pin 6

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Reconnect connector DM27202 to flap position sensor 2R, M27202 in the right main wheel well.
 - 3) Re-install FSEU 2 on the E4-1 shelf.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-52 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 266
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (10) Re-install FSEU 2 on the E4-1 shelf.
- (11) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (12) Replace the flap position sensor 2R, M27202 in the right wheel well.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (13) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

828. Left and Right Flap Position Sensor Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21202.

B. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

EFFECTIVITY
ARO ALL

27-52 TASKS 827-828

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 267
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a check of the torque tubes between the flap power drive unit (PDU) and the flap position sensor gearboxes in the left and right wheel wells.

- (a) If the torque tubes are broken or disconnected, connect or replace the torque tubes.

These are the tasks:

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,

Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

- 1) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
- 2) Use the primary system to extend the flaps to the 30-unit position, then retract the flaps to the retracted position. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If you do not find a problem with the torque tubes, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-52 TASK 828

D633W103-ARO

Page 268
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Make sure the flaps are in the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, AMM TASK 27-51-00-860-805.
- (5) Make sure the index marks for the rig indicator on the flap position sensor gearbox align.
- (6) Use the FLAP/SLAT maintenance page on EICAS to make sure the four FLAP POS indications are in the limit of 8.50 to 11.00.
- (7) If FLAP POS indications are not in the limit, replace the applicable flap position sensors.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

NOTE: FLAP POS L1 is M27101; FLAP POS R1 is M27102; FLAP POS L2 is M27201; FLAP POS R2 is M27202.

- (a) If the four FLAP POS indications on the FLAP/SLAT maintenance page on EICAS are in the limit of 8.50 to 11.00, do this test:
 - 1) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
 - 2) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the four FLAP POS indications on the FLAP/SLAT maintenance page on EICAS are not the limit, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (8) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the four FLAP POS indications on the FLAP/SLAT maintenance page on EICAS are in the limit of 8.50 to 11.00, do this test:
 - 1) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
 - 2) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the four FLAP POS indications on the FLAP/SLAT maintenance page on EICAS are not the limit, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-52 TASK 828

D633W103-ARO

Page 269
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (9) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (10) Remove FSEU 2, M27002 from the E4-1 shelf.
- (11) If FLAP POS L2 is not in the limit, do this check of the wiring between the flap position sensor 2L, M27201 and FSEU 2, M27002:
- (a) Disconnect the connector DM27201 from the flap position sensor 2L, M27201 in the left wheel well.
- (b) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DM27201 on flap position sensor 2L, M27201 (WDM 27-58-12):

DM27002AC	DM27201
pin K3	pin 1
pin J3	pin 2
pin G9	pin 3
pin G10	pin 4
pin F9	pin 5
pin F10	pin 6

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Reconnect connector DM27201 to flap position sensor 2L, M27201 in the left main wheel well.
 - 3) Re-install FSEU 2 on the E4-1 rack.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Reconnect connector DM27201 to flap position sensor 2L, M27201 in the left main wheel well.

EFFECTIVITY
ARO ALL

27-52 TASK 828

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 270
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (12) If FLAP POS R2 is not in the limit, do this check of the wiring between the flap position sensor 2R, M27202 and FSEU 2, M27002:
- (a) Disconnect the connector DM27202 from the flap position sensor 2R, M27202 in the right wheel well.
 - (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DM27102 on flap position sensor 2R, M27202 (WDM 27-58-12):

DM27002AA	DM27202
pin A3	pin 1
pin B3	pin 2
pin D9	pin 3
pin D10	pin 4
pin E9	pin 5
pin E10	pin 6

- (c) If you find a problem with the wiring, repair the wiring.
- (d) Reconnect connector DM27202 to flap position sensor 2R, M27202 in the right main wheel well.
- (e) Re-install FSEU 2 on the E4-1 rack.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (g) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (13) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

829. Right to Left Flap Position Sensor Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21212.

EFFECTIVITY
ARO ALL

27-52 TASKS 828-829

D633W103-ARO

Page 271
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a check of the torque tubes between the flap power drive unit (PDU) and the flap position sensor gearboxes in the left and right wheel wells.
 - (a) If the torque tubes are broken or disconnected, connect or replace the torque tubes.

These are the tasks:

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

 - 1) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 2) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If you do not find a problem with the torque tubes, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
 - (4) Replace the flap position sensor 2R, M27202 in the right wheel well.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,
Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

EFFECTIVITY
ARO ALL

27-52 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 272
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (6) Remove FSEU 2, M27002 from the E4-1 shelf.
- (7) Do this check of the wiring between the flap position sensor 2R, M27202 and FSEU 2, M27002:
- (a) Disconnect the connector DM27202 flap position sensor 2R, M27202 in the right wheel well.
- (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DM27202 on flap position sensor 2R, M27202 (WDM 27-58-12):

DM27002AA		DM27202	
pin A3	.....	pin 1	
pin B3	.....	pin 2	
pin D9	.....	pin 3	
pin D10	.....	pin 4	
pin E9	.....	pin 5	
pin E10	.....	pin 6	

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Reconnect connector DM27202 to flap position sensor 2R, M27202 in the right main wheel well.
 - 3) Re-install FSEU 2 on the E4-1 shelf.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

EFFECTIVITY
ARO ALL

27-52 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 273
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (8) Do this check of the wiring between the flap position sensor 2L, M27201 and FSEU 2, M27002:
 - (a) Disconnect the connector DM27201 flap position sensor 2L, M27201 in the left wheel well.
 - (b) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DM27201 on flap position sensor 2L, M27201 (WDM 27-58-12):

DM27002AC	DM27201
pin K3	pin 1
pin J3	pin 2
pin G9	pin 3
pin G10	pin 4
pin F9	pin 5
pin F10	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Reconnect connector DM27201 to flap position sensor 2L, M27201 in the left main wheel well.
 - 3) Re-install FSEU 2 on the E4-1 rack.
 - 4) Remove the safety tags and close these circuit breakers:
- | Right Power Management Panel, P210 | | | |
|------------------------------------|-----|--------|------------|
| Row | Col | Number | Name |
| F | 21 | C27514 | SNSR EXC 2 |
| K | 4 | C27602 | FSEU 2 |
- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE:** Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
- a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
 - (9) Reconnect connector DM27201 to flap position sensor 2L, M27201 in the left main wheel well.
 - (10) Re-install FSEU 2 on the E4-1 rack.

EFFECTIVITY
ARO ALL

27-52 TASK 829

D633W103-ARO

Page 274
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (11) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (12) Replace the flap position sensor 2L, M27201 in the left wheel well.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
- 2) If the maintenance message shows on the MAT, then continue.

- (13) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

 WARNING	OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (14) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

830. Flaps Skew and Position Sensor Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21222.

EFFECTIVITY
ARO ALL

27-52 TASKS 829-830

D633W103-ARO

Page 275
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for broken or disconnected torque tubes for the flap drive system:

NOTE: It is likely that there are broken or disconnected torque tubes between the flap position sensor gearboxes and flap supports No. 1 and 8.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) Look at the torque tubes in the main landing gear wheel wells outboard of the position sensor gearboxes to see if they are broken or disconnected.
- (d) Look at the indications for the INBD FLAPS and OUTBD FLAPS on the FLAP/SLAT maintenance page on EICAS.
 - 1) Compare the indications for the adjacent flap supports to see if they are different by more than 1 volt.
 - 2) If the indications are different by more than 1 volt, then look at the torque tubes between the applicable flap supports.
- (e) Look at the torque tubes between flap support No. 1 and No. 2.
 - 1) If the flap is retracted, remove these access panels to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- (f) Look at the torque tubes between flap supports No. 2 and No. 3.
 - 1) If the flap is retracted, remove these access panels to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-52 TASK 830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 276
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (g) Look at the torque tubes between flap supports No. 3 and No. 4.

- 1) Remove these access panels to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- (h) Look at the torque tubes between flap supports No. 5 and No. 6.

- 1) Remove these access panels to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

- (i) Look at the torque tubes between flap supports No. 6 and No. 7.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- (j) Look at the torque tubes between flap support No. 7 and No. 8.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- (k) If you see a broken or disconnected torque tube, replace the applicable torque tube, torque tube support or no-back brake:

- 1) If it is necessary, replace an outboard wing torque tube.

These are the tasks:

Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,

Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.

- 2) If it is necessary, replace an inboard wing torque tube.

These are the tasks:

EFFECTIVITY
ARO ALL

27-52 TASK 830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 277
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.

- 3) If it is necessary, replace a torque tube in the wheel well.

These are the tasks:

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

- 4) If it is necessary, replace an outboard wing torque tube support.

These are the tasks:

Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-802.

- 5) If it is necessary, replace an inboard wing torque tube support.

These are the tasks:

Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.

- (l) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

- (m) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

- (n) Install the applicable access panels:

- 1) Install these access panel between flap supports No. 1 and No. 2:

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- 2) Install these access panel between flap supports No. 2 and 3:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 3) Install these access panel between flap supports No. 3 and No. 4:

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- 4) Install these access panel between flap supports No. 5 and No. 6:

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-52 TASK 830

D633W103-ARO

Page 278
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Install these access panel between flap supports No. 6 and No. 7:

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- 6) Install these access panel between flap supports No. 7 and No. 8:

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (o) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
(p) If you do not see broken or disconnected torque tubes, then continue.
(2) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

————— **END OF TASK** —————

831. FSEU 2 Control Channel No Input from Monitor Channel on Systems 629 Bus-C1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21232.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
(2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

EFFECTIVITY
ARO ALL

27-52 TASKS 830-831

D633W103-ARO

Page 279
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the ARINC 629 coupler, B27303, in the P311 panel.

These are the tasks:

ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,

ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.

NOTE: This coupler connects the control channel for FSEU 2 to the Systems 629 Bus C1.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the ARINC 629 coupler, B27304, in the P311 panel.

These are the tasks:

ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,

ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.

NOTE: This coupler connects the monitor channel for FSEU 2 to the Systems 629 Bus C1.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Do this check of the wiring from FSEU 2 to the coupler, B27303:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Disconnect the connector DB27303 from the coupler B27303.
- (d) Do a wiring check between these pins of connector DM27002AB on FSEU 2, M27002 and connector DB27303 at the P311 panel (WDM 27-51-12):

DM27002AB	DB27303
pin 3TR	pin 1
pin 3T	pin 2
pin 6TR	pin 4
pin 6T	pin 5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DB27303 to the coupler, B27303.

EFFECTIVITY
ARO ALL

27-52 TASK 831

D633W103-ARO

Page 280
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (5) Re-connect connector DB27303 to the coupler, B27303.
- (6) Do this check of the wiring from FSEU 2 to the coupler, B27304:
- (a) Disconnect the connector DB27304 from the coupler B27304.
- (b) Do a wiring check between these pins of connector DM27002AD on FSEU 2, M27002 and connector DB27304 at the P311 panel (WDM 27-51-12):

DM27002AD	DB27304
pin 3TR	pin 1
pin 3T	pin 2
pin 6TR	pin 4
pin 6T	pin 5

- (c) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DB27304 to the coupler, B27304.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

832. FSEU 2 Monitor Channel No Input from Control Channel on Systems 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21242.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-52 TASKS 831-832

D633W103-ARO

Page 281
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

(a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

(b) If the MAT shows ACTIVE for the maintenance message, then continue.

- (2) Replace the ARINC 629 coupler, B27202, in the P211 panel.

These are the tasks:

ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,

ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.

NOTE: This coupler connects the monitor channel for FSEU 2 to the Systems 629 Bus-R.

(a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

(b) If the MAT shows ACTIVE for the maintenance message, then continue.

- (3) Replace the ARINC 629 coupler, B27201, in the P211 panel.

These are the tasks:

ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,

ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.

NOTE: This coupler connects the control channel for FSEU 2 to the Systems 629 Bus-R.

(a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

(b) If the MAT shows ACTIVE for the maintenance message, then continue.

- (4) Do this check of the wiring from FSEU 2 to the coupler, B27202:

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.

- (c) Disconnect the connector DB27202 from the coupler B27202.

- (d) Do a wiring check between these pins of connector DM27002AD on FSEU 2, M27002 and connector DB27202 at the P211 panel (WDM 27-51-12):

DM27002AD	DB27202
pin 2TR	pin 1
pin 2T	pin 2
pin 5TR	pin 4
pin 5T	pin 5

- (e) If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-52 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 282
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
- 2) Re-install FSEU 2, M27002.
- 3) Re-connect connector DB27202 to the coupler, B27202.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (f) If you do not find a problem with the wiring, then continue.
- (5) Re-connect connector DB27202 to the coupler, B27202.
- (6) Do this check of the wiring from FSEU 2 to the coupler, B27201:
 - (a) Disconnect the connector DB27201 from the coupler B27201.
 - (b) Do a wiring check between these pins of connector DM27002AB on FSEU 2, M27002 and connector DB27201 at the P211 panel (WDM 27-51-12):

DM27002AB	DB27201
pin 2TR	pin 1
pin 2T	pin 2
pin 5TR	pin 4
pin 5T	pin 5

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DB27201 to the coupler, B27201.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

833. Center Hydraulic System Problems FSEU 2 - Fault Isolation

A. **Maintenance Messages**

- (1) This task is for maintenance message: 27-21262.

EFFECTIVITY
ARO ALL

27-52 TASKS 832-833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 283
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Look at the MAT Existing Faults display for 29 Hydraulic Systems messages related to the center system reservoir quantity or center system HYDIM cards:
 - (a) If you find 29 Hydraulic Systems maintenance messages, then do these steps:
 - 1) Do the applicable fault isolation tasks for the maintenance messages.
 - 2) When the hydraulic system messages are corrected, then continue.
- (2) Cycle the ALTN FLAPS ARM switch until FSEU 2 is in control.
- (3) Use the primary system to extend and retract the flaps a small distance. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the HYDRAULICS synoptics page on the EICAS display.
 - (a) If the quantity for the center hydraulic system reservoir is low, then fill the reservoir, do this task: Hydraulic Reservoir Filling, AMM TASK 12-12-01-610-802.
 - 1) Use the primary system to extend and retract the flaps a small distance. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
 - a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the quantity for the center hydraulic system reservoir is not low, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 2, M27002 and the Left System Card File (LSCF) P85:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins of connector DM27002AA on FSEU 2, M27002 and connector DP8507 on the P85 panel (WDM 29-11-37):

DM27002AA	DP8507
pin J6	pin 38

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.

EFFECTIVITY
ARO ALL

27-52 TASK 833

D633W103-ARO

Page 284
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 4) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (3) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (a) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

834. Flaps Retracted Discrete Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21272.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-52 TASKS 833-834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 285
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

835. FSEU 2 No Output on Systems 629 Bus - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-28802.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

————— **END OF TASK** —————

836. FSEU 2 No Output Systems 629 Bus-R - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-28862.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the ARINC 629 couplers, B27201 and B27202, in the P211 panel.
- These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,
- ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.
- NOTE: Coupler B27201 connects the control channel for FSEU 2 to the Systems 629 Bus-R.
Coupler B27202 connects the monitor channel for FSEU 2 to the Systems 629 Bus-R.
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.

EFFECTIVITY
ARO ALL

27-52 TASKS 835-836

D633W103-ARO

Page 286
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the wiring from FSEU 2 to the coupler, B27202:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Disconnect the connector DB27202 from the coupler B27202.
- (d) Do a wiring check between these pins of connector DM27002AD on FSEU 2, M27002 and connector DB27202 at the P211 panel (WDM 27-51-12):

DM27002AD	DB27202
pin 2TR	pin 1
pin 2T	pin 2
pin 5TR	pin 4
pin 5T	pin 5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DB27202 to the coupler, B27202.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Re-connect connector DB27202 to the coupler, B27202.
- (5) Do this check of the wiring from FSEU 2 to the coupler, B27201:
- (a) Disconnect the connector DB27201 from the coupler B27201.
- (b) Do a wiring check between these pins of connector DM27002AB on FSEU 2, M27002 and connector DB27201 at the P211 panel (WDM 27-51-12):

DM27002AB	DB27201
pin 2TR	pin 1
pin 2T	pin 2
pin 5TR	pin 4
pin 5T	pin 5

- (c) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).

EFFECTIVITY
ARO ALL

27-52 TASK 836

D633W103-ARO

Page 287
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 2) Re-install FSEU 2, M27002.
- 3) Re-connect connector DB27201 to the coupler, B27201.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

END OF TASK

837. FSEU 2 Monitor Channel No Output on Systems 629 Bus-C1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-28852.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the ARINC 629 coupler, B27304, in the P311 panel.

These are the tasks:

ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801,

ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801.

NOTE: Coupler B27304 connects the monitor channel for FSEU 2 to the Systems 629 Bus-C1.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the wiring from FSEU 2 to the coupler, B27304:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

EFFECTIVITY
ARO ALL

27-52 TASKS 836-837

D633W103-ARO

Page 288
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Disconnect the connector DB27304 from the coupler B27304.
- (d) Do a wiring check between these pins of connector DM27002AD on FSEU 2, M27002 and connector DB27304 at the P311 panel (WDM 27-51-12):

<u>DM27002AD</u>	<u>DB27304</u>
pin 3TR	pin 1
pin 3T	pin 2
pin 6TR	pin 4
pin 6T	pin 5

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DB27302 to the coupler, B27304.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

END OF TASK

838. FSEU Synchronization Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25012.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check to see if the fault is in FSEU 2:

EFFECTIVITY
ARO ALL

27-52 TASKS 837-838

D633W103-ARO

Page 289
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Exchange FSEU 2, M27002 (E4-1 shelf) with FSEU 1, M27001 (E1-6 shelf).

- (c) Close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (d) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.

- (e) If the maintenance message does not show on the ground test display, then do these steps:

- 1) Replace FSEU 1 (this is the FSEU initially installed in the position of FSEU 2).

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- 2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- 3) If the maintenance message 27-25011 does not show on the ground test display, then you corrected the fault.

- (f) If the maintenance message 27-25012 shows on the ground test display, then continue.

- (2) Do this check of the wiring between FSEU 1, M27001 and FSEU 2, M27002:

- (a) Remove FSEU 1, M27001 from the E1-6 shelf.
- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins of connector DM27002AC on FSEU 2, M27002 and connector DM27001AA on FSEU 1, M27001 (WDM 27-51-11):

DM27002AC

pin C1

pin C2

DM27001AA

pin F3

pin F5

EFFECTIVITY
ARO ALL

27-52 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 290
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins of connector DM27002AA on FSEU 2, M27002 and connector DM27001AC on FSEU 1, M27001 (WDM 27-51-12):

DM27002AA	DM27001AC
pin F3	pin C1
pin F5	pin C2

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-install FSEU 2, M27002.
 - 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring (or if the maintenance message shows), then continue.
- (3) Replace FSEU 2 (this is the FSEU initially installed in the position of FSEU 1).
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.

— END OF TASK —

839. Primary Flaps Extend Slow Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25182.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.

NOTE: This fault can occur if there is not sufficient hydraulic power available. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power. The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps.

- (a) If the maintenance message does not show on the ground test display, then do the Fault Isolation Procedure - Intermittent Extend Solenoid Problem below.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Extend Problem below.

EFFECTIVITY
ARO ALL

27-52 TASKS 838-839

D633W103-ARO

Page 291
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure - Intermittent Extend Solenoid Problem



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Primary Extend solenoid on the flap primary control valve, V27004 in the right main wheel well:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (c) Do a check of the resistance between pins 11 and 15 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):
- (d) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

- 1) Replace the Primary Extend solenoid on the flap primary control valve, V27004.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

- 2) Do a check of the resistance between pins 11 and 15 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-16).

NOTE: This does a check of the internal wiring on the primary control valve, V27004.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

EFFECTIVITY
ARO ALL

27-52 TASK 839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 292
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (e) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (g) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - 1) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Extend Problem below.
 - 2) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

D. Fault Isolation Procedure - Slow Extend Problem



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.
- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (3) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2:

EFFECTIVITY
ARO ALL

27-52 TASK 839

D633W103-ARO

Page 293
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the FLAP/SLAT CONTROL 2 EICAS message shows, then replace FSEU 2, M27002.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (b) If the FLAP/SLAT CONTROL 2 EICAS message does not show, then continue.
- (4) If the AFT FLAPS PRIMARY EXTEND COIL fault shows on the MAT, then replace the Primary Extend solenoid on the flap primary control valve, V27004.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2:
- (b) If the MAT shows PASSED after the ground test, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- 1) If the MAT shows PASSED after the ground test, then you corrected the fault.
- (c) Do this wiring check between FSEU 2, M27002 and the primary control valve, V27004 in the right wheel well:



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- 1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- 2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- 3) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Remove FSEU 2, M27002 from the E4-1 shelf.
- 5) Disconnect electrical connector DV27004B from the flap primary control valve, V27004.

EFFECTIVITY
ARO ALL

27-52 TASK 839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 294
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 6) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

DM27002AC	DV27004B
pin F1	pin 12

- 7) If you find a problem with the wiring, then repair the wiring.
8) Re-install FSEU 2, M27002.
9) Re-connect connector DV27004B to the flap primary control valve, V27004.
10) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

Row	Col	Number	Name
G	11	C27604	FLAPS PRI DR CTRL 1

- (d) If you do not find a problem with the wiring, then continue.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, replace the flap primary control valve, V27004.
- These are the tasks:
- Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (6) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, replace the flap hydraulic motor.
- These are the tasks:
- Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801,
Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (7) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, replace the flap power drive unit.
- These are the tasks:

EFFECTIVITY
ARO ALL

27-52 TASK 839

D633W103-ARO

Page 295
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap Power Drive Unit (PDU) Removal, AMM TASK 27-51-31-000-801,
Flap Power Drive Unit (PDU) Installation, AMM TASK 27-51-31-400-801.

- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (8) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (9) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

840. Primary Flaps Operate Fast Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-25192, 27-25212.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

 - 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - 2) If the MAT shows PASSED after the ground test, then continue.
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.

EFFECTIVITY
ARO ALL

27-52 TASKS 839-840

D633W103-ARO

Page 296
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message shows on the ground test display, replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (3) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

841. Primary Flaps Retract Slow Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25202.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.

NOTE: This fault can occur if there is not sufficient hydraulic power available. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power. The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps.

- (a) If the maintenance message does not show on the ground test display, then do the Fault Isolation Procedure - Intermittent Retract Solenoid Problem below.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Retract Problem below.

C. Fault Isolation Procedure - Intermittent Retract Solenoid Problem



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Primary Retract solenoid on the flap primary control valve, V27004 in the right main wheel well:

EFFECTIVITY
ARO ALL

27-52 TASKS 840-841

D633W103-ARO

Page 297
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (c) Do a check of the resistance between pins 4 and 14 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):
- (d) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
- 1) Replace the Primary Retract solenoid on the flap primary control valve, V27004.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
 - 2) Do a check of the resistance between pins 4 and 14 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-16).
NOTE: This does a check of the internal wiring on the primary control valve, V27004.
 - a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- (e) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (g) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- 1) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Retract Problem below.

EFFECTIVITY
ARO ALL

27-52 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

D. Fault Isolation Procedure - Slow Retract Problem



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the flaps. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

EFFECTIVITY
ARO ALL

27-52 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.1
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (6) Remove FSEU 2, M27002 from the E4-1 shelf.
- (7) Do this wiring check between the Low Speed Solenoid on the flap primary control valve, V27004 and FSEU 2, M27002:
- (a) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (b) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

DM27002AC	DV27004B
pin F1	pin 12

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- b) If the maintenance message shows on the ground test display, then continue.
- (8) Do this wiring check between the Retract Solenoid and FSEU 2:

EFFECTIVITY
ARO ALL

27-52 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.2
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

DM27002AC	DV27004B
pin D1	pin 4

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (9) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (10) Re-install FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (11) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (12) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.

These are the tasks:

EFFECTIVITY
ARO ALL

27-52 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.3
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- (b) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (13) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, replace the flap primary control valve, V27004.
- These are the tasks:
- Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

842. Primary Flaps Low Speed Extend Slow Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25222.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-52 TASKS 841-842

D633W103-ARO

Page 298.4
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the center hydraulic system is not pressurized, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (5) Replace the Primary Extend solenoid on the flap primary control valve, V27004.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (7) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.

EFFECTIVITY
ARO ALL

27-52 TASK 842

D633W103-ARO

Page 298.5
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (b) If the MAT shows PASSED after the ground test, then continue.
- (8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (9) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (10) Do a check of the internal wiring in the primary control valve, V27004 for the Primary Extend solenoid:
 - (a) Disconnect electrical connector DV27004B from the flap primary control valve, V27004.
 - (b) Do a check of the resistance between pins 11 and 15 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):
 - (c) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the flap primary control valve, V27004.
- These are the tasks:
- Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- 2) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-52 TASK 842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.6
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - d) If the resistance between the pins is in the limit, or if the maintenance message shows on the ground test display, then continue.
- (11) Replace the flap hydraulic motor.

These are the tasks:

Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801,

Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.

 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (12) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (13) Remove FSEU 2, M27002 from the E4-1 shelf.
- (14) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

DM27002AC	DV27004B
pin G1	pin 11

- (a) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-52 TASK 842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.7
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (15) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

D21026P	DV27004B
pin 13	pin 15

- (a) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (16) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (17) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (18) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-52 TASK 842

D633W103-ARO

Page 298.8
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (19) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (20) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

———— END OF TASK ————

843. Primary Flaps Low Speed Operate Fast Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-25232, 27-25252.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the Low Speed solenoid on the flap primary control valve, V27004.
- These are the tasks:
- Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
- Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

EFFECTIVITY
ARO ALL

27-52 TASKS 842-843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.9
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
 - (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

 - 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - (b) If the MAT shows PASSED after the ground test, then continue.
- (6) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (7) Do a check of the internal wiring in the primary control valve, V27004 for the Low Speed solenoid:
 - (a) Disconnect electrical connector DV27004B from the flap primary control valve, V27004.
 - (b) Do a check of the resistance between pins 5 and 12 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):
 - (c) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - 2) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.

EFFECTIVITY
ARO ALL

27-52 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.10
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (d) If the resistance between the pins is in the limit, or if the maintenance message shows on the ground test display, then continue.

- (8) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (9) Remove FSEU 2, M27002 from the E4-1 shelf.
- (10) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

DM27002AC	DV27004B
pin F1	pin 12

- (a) If you find a problem with the wiring, do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 2, M27002.
- 3) Re-connect connector DV27004B.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.

EFFECTIVITY
ARO ALL

27-52 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.11
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (11) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

D21026P	DV27004B
pin 13	pin 5

- (a) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (12) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (13) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (14) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-52 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.12
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (15) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (16) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

END OF TASK

844. Primary Flaps Low Speed Retract Slow Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25242.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the center hydraulic system is not pressurized, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

EFFECTIVITY
ARO ALL

27-52 TASKS 843-844

D633W103-ARO

Page 298.13
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (5) Replace the Primary Retract solenoid on the flap primary control valve, V27004.
- These are the tasks:
- Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If the maintenance message shows on the ground test display, then continue.
- (6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (7) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 1.
- (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.
- These are the tasks:
- Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- b) If the maintenance message shows on the ground test display, then continue.
- (b) If the MAT shows PASSED after the ground test, then continue.
- (8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (9) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-52 TASK 844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.14
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (10) Do a check of the internal wiring in the primary control valve, V27004 for the Primary Retract solenoid:
- Disconnect electrical connector DV27004B from the flap primary control valve, V27004.
 - Do a check of the resistance between pins 4 and 14 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):
 - If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - Replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
 - Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - If the maintenance message does not show on the ground test display, then you corrected the fault.
 - If the resistance between the pins is in the limit, or if the maintenance message shows on the ground test display, then continue.
- (11) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (12) Remove FSEU 2, M27002 from the E4-1 shelf.
- (13) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

DM27002AC	DV27004B
pin D1	pin 4

EFFECTIVITY
ARO ALL

27-52 TASK 844

D633W103-ARO

Page 298.15
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (14) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

D21026P	DV27004B
pin 13	pin 14

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.

EFFECTIVITY
ARO ALL

27-52 TASK 844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.16
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (15) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (16) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (17) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (18) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flaps Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (19) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

845. Secondary Flaps Extend Slow Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25262.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-52 TASKS 844-845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.17
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, continue.
- (2) Use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- (a) If the flaps do not operate in alternate mode, replace the flap electric motor, B27002.
- These are the tasks:
- Flap Electric Motor Removal, AMM TASK 27-51-34-000-801,
Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
- 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the flaps operate in alternate mode, continue.
- (3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- (a) If the maintenance message does not show on the ground test display, replace FSEU 2, M27002.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, continue.

EFFECTIVITY
ARO ALL

27-52 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.18
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (5) Remove FSEU 2, M27002 from the E4-1 shelf.
- (6) Do this check of the flaps bypass/clutch relay, K27002:
- (a) Remove the flaps bypass/clutch relay, K27002 from the P110 power management panel (WDM 27-51-17).
- (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27002 at the P110 power management panel (WDM 27-51-17):

DM27002AA	DK27002
pin D5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Install the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-52 TASK 845

D633W103-ARO

Page 298.19
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 2. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
- (f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (h) If the maintenance message shows on the ground test display, then replace the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
 - (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (j) If the maintenance message shows on the ground test display, then continue.
- (7) Do this check of the flaps extend relay, K27004:
- (a) Remove the flaps extend relay, K27004 from the P110 power management panel (WDM 27-51-17).
 - (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27004 at the P110 power management panel (WDM 27-51-17):

DM27002AA	DK27004
pin D1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Install the flaps extend relay, K27004 on the P110 power management panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-52 TASK 845

D633W103-ARO

Page 298.20
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 2. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the flaps extend relay, K27004 on the P110 power management panel (WDM 27-51-17).
- (f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the flaps extend relay, K27004 on the P110 power management panel (WDM 27-51-17).
- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-52 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.21
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

846. Secondary Flaps Retract Slow Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25272.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, continue.
- (2) Use the alternate mode to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
 - (a) If the flaps do not operate in alternate mode, replace the flap electric motor, B27002.

These are the tasks:

Flap Electric Motor Removal, AMM TASK 27-51-34-000-801,

Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.

 - 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, or if the flaps operate in alternate mode, continue.

EFFECTIVITY
ARO ALL

27-52 TASKS 845-846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.22
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Flaps Only.
- (a) If the maintenance message does not show on the ground test display, replace FSEU 2, M27002.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, continue.
- (4) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (5) Remove FSEU 2, M27002 from the E4-1 shelf.
- (6) Do this check of the flaps bypass/clutch relay, K27002:
- (a) Remove the flaps bypass/clutch relay, K27002 from the P110 power management panel (WDM 27-51-17).
- (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27002 at the P110 power management panel (WDM 27-51-17):
- | | |
|------------------|----------------|
| DM27002AA | DK27002 |
| pin D5 | pin X2 |
- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-install FSEU 2, M27002.
- 3) Install the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-52 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.23
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 2. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
- (f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-52 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.24
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (j) If the maintenance message shows on the ground test display, then continue.
- (7) Do this check of the flaps retract relay, K27006:
 - (a) Remove the flaps retract relay, K27006 from the P110 power management panel (WDM 27-51-17).
 - (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27006 at the P110 power management panel (WDM 27-51-17):

DM27002AA	DK27006
pin G1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Install the flaps retract relay, K27006 on the P110 power management panel (WDM 27-51-17).
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 2. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the flaps retract relay, K27006 on the P110 power management panel (WDM 27-51-17).
- (f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-52 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.25
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the flaps retract relay, K27006 on the P110 power management panel (WDM 27-51-17).
- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

— END OF TASK —

847. Flap Control Lever Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25412.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
 - (a) If the MAT does not show PASSED after the ground test, then replace the flap lever position sensor, M27037.

These are the tasks:

Flap Lever Position Sensor Removal, AMM TASK 27-51-03-000-801,
Flap Lever Position Sensor Installation, AMM TASK 27-51-03-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-52 TASKS 846-847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.26
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (2) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (3) Do this wiring check between the flap lever position sensor, M27037 and FSEU 2, M27002:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Disconnect electrical connector DM27037C on the control stand for the flap lever position sensor, M27037 (WDM 27-51-13).
- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DM27037C at the control stand (WDM 27-51-13):

DM27002AA		DM27037C	
pin A2	.....	pin 1	
pin B2	.....	pin 2	
pin A9	.....	pin 4	
pin B9	.....	pin 5	

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-install FSEU 2, M27002.
- 3) Connect electrical connector DM27037C on the control stand for the flap lever position sensor, M27037 (WDM 27-51-13).
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If the maintenance message shows on the ground test display or, if you do not find a problem with the wiring, then continue.
- (g) Connect electrical connector DM27037C on the control stand for the flap lever position sensor, M27037 (WDM 27-51-13).
- (h) Disconnect electrical connector DM27037D on the control stand for the flap lever position sensor, M27037 (WDM 27-51-13).

EFFECTIVITY
ARO ALL

27-52 TASK 847

D633W103-ARO

Page 298.27
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (i) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DM27037D at the control stand (WDM 27-51-13):

DM27002AC	DM27037D
pin J2	pin 2
pin K2	pin 1
pin J9	pin 5
pin K9	pin 4

- (j) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Connect electrical connector DM27037D on the control stand for the flap lever position sensor, M27037 (WDM 27-51-13).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2.
- 6) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

848. Secondary Flaps Do Not Operate Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25282.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-52 TASKS 847-848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.28
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, then continue.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Do this wiring check of the Bypass solenoid on the flap primary control valve, V27004:
 - (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (b) Disconnect electrical connector DV27004A from the flap primary control valve, V27004 in the right wheel well.
- (c) Do a check of the resistance between pins 10 and 16 of connector DV27004A on the flap primary control valve, V27004 in the left wheel well (WDM 27-51-17):
- (d) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the Bypass solenoid on the flap primary control valve, V27004.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

- 2) Do a check of the resistance between pins 10 and 16 of connector DV27004A on the flap primary control valve, V27004 again (WDM 27-51-17).

NOTE: This does a check of the internal wiring on the primary control valve, V27004.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

EFFECTIVITY
ARO ALL

27-52 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.29
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.
- 3) Connect electrical connector DV27004A to the flap primary control valve, V27004 in the right wheel well.
- 4) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - (a) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

 - 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the MAT does not show PASSED after the ground test, then continue.
- (6) Do this check of the flaps bypass/clutch relay, K27002:
 - (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Remove the flaps bypass/clutch relay, K27002 from the P110 power management panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-52 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.30
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27002 at the P110 power management panel (WDM 27-51-17):

DM27002AA	DK27002
pin D5	pin X2

- (e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 2, M27002.
- 3) Install the flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (7) Install a new flaps bypass/clutch relay, K27002 on the P110 power management panel (WDM 27-51-17).
- (8) Re-install FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (9) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2

EFFECTIVITY
ARO ALL

27-52 TASK 848

D633W103-ARO

Page 298.31
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	4	C27602	FSEU 2

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (11) Do this wiring check between the flaps retract relay, K27006 and FSEU 2, M27002:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Remove the flaps retract relay, K27006 from the P110 power management panel (WDM 27-51-17).
- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27006 at the P110 power management panel (WDM 27-51-17):

DM27002AA	DK27006
pin G1	pin X2

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Install the flaps retract relay, K27006 on the P110 power management panel (WDM 27-51-17).
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-52 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.32
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If the maintenance message shows on the ground test display, then continue.
- (12) Install a new flaps retract relay, K27006 on the P110 power management panel (WDM 27-51-17).
- (13) Install FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (14) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (15) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (16) These are the tasks:
- Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- (17) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.

EFFECTIVITY
ARO ALL

27-52 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.33
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (18) Replace the flap electric motor, B27002.
- These are the tasks:
- Flap Electric Motor Removal, AMM TASK 27-51-34-000-801,
Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
- (19) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (20) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

849. Flaps Shutoff Valve Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25292.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the Shutoff Solenoid on the flap primary control valve, V27004 in the right wheel well.

EFFECTIVITY
ARO ALL

27-52 TASKS 848-849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.34
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- (b) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Disconnect connector DV27004A from the flap primary control valve, V27004 in the right wheel well.
- (d) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004A at the flap primary control valve, V27004 (WDM 27-51-16):

EFFECTIVITY
ARO ALL

27-52 TASK 849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.35
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AC

pin G5

DV27004A

pin 12

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27004A to the flap primary control valve, V27004.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (7) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

850. Flaps Primary System Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25302.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.

EFFECTIVITY
ARO ALL

27-52 TASKS 849-850

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.36
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then replace the flap hydraulic motor.

These are the tasks:

Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801,

Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.

- 2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the MAT shows PASSED after the ground test, then continue.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Do a wiring check between the flap primary control valve, V27004 and FSEU 2, M27002:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Disconnect connectors DV27004A and DV27004B from the flap primary control valve, V27004 in the right wheel well.

EFFECTIVITY
ARO ALL

27-52 TASK 850

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.37
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004A at the flap primary control valve, V27004 (WDM 27-51-16):

DM27002AC	DV27004A
pin G5	pin 12

- (e) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004B at the flap primary control valve, V27004 (WDM 27-51-16):

DM27002AC	DV27004B
pin D1	pin 4
pin F1	pin 12
pin G1	pin 11

- (f) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 2, M27002.
- 3) Re-connect connectors DV27004A and DV27004B to the flap primary control valve, V27004.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 1.
 - (a) If the MAT does not show PASSED after the ground test, then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-52 TASK 850

D633W103-ARO

Page 298.38
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (6) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, replace the flap primary control valve, V27004.
- These are the tasks:
- Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (7) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the flap hydraulic motor.
- These are the tasks:
- Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801,
Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
- (9) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Flap Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (10) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

851. Flap Secondary System Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25312.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-52 TASKS 850-851

D633W103-ARO

Page 298.39
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the circuit breakers were closed, or if the maintenance message shows on the ground test display, then continue.
- (2) Do this check to see if the flap drive system is locked:
- (a) Use the primary system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- (b) If the flaps do not operate with the primary system, then the flap drive system is locked.
- (c) If the flaps operate with the primary system, then the flap drive system is not locked.
- (3) If the flap drive system is locked, do these steps:



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (d) Disconnect the torque tubes inboard of the flap position sensor gearboxes.



DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 1200 POUND-INCHES TORQUE OR FASTER THAN 400 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.

EFFECTIVITY
ARO ALL

27-52 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.40
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(CAUTION PRECEDES)



DO NOT LET THE BALLSCREW NUTS HIT THE UPSTOPS OR DOWNSTOPS. YOU CAN CAUSE DAMAGE TO THE SHEAROUT IN THE POSITION SENSOR GEARBOX.

- (e) Use the manual drive on the flap position sensor gearboxes to extend and retract the flaps on each wing. To manually operate the flaps, do this task: Trailing Edge Flap System Manual Operation, AMM TASK 27-51-00-980-801.
- (f) If you can extend and retract the flaps on each wing, do these steps:
- 1) Do this task: Flap Electric Motor Removal, AMM TASK 27-51-34-000-801.
 - 2) Use an T.E. flap torque tube coupling drive adapter, SPL-1704 to turn the flap power drive unit (PDU) in the extend and retract directions.
 - 3) If you can turn the PDU, install a new flap electric motor, B27002. To install it, do this task: Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
 - 4) If you cannot turn the PDU, do this task: Flap Hydraulic Motor Removal, AMM TASK 27-51-33-000-801.
 - 5) Use an T.E. flap torque tube coupling drive adapter, SPL-1704 to turn the flap power drive unit (PDU) in the extend and retract directions.
 - 6) If you cannot turn the PDU, replace the flap power drive unit (PDU).
These are the tasks:
Flap Power Drive Unit (PDU) Removal, AMM TASK 27-51-31-000-801,
Flap Power Drive Unit (PDU) Installation, AMM TASK 27-51-31-400-801.
 - 7) Try to turn the output shaft on the flap hydraulic motor.
 - 8) If you can turn the output shaft on the hydraulic motor, replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - 9) If you cannot turn the output shaft on the flap hydraulic motor, install a new flap hydraulic motor. To install it, do this task: Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
 - 10) If it is necessary, re-install the flap hydraulic motor. To install it, do this task: Flap Hydraulic Motor Installation, AMM TASK 27-51-33-400-801.
 - 11) If it is necessary, re-install the flap electric motor. To install it, do this task: Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.
- (g) If you cannot extend and retract the flaps on one of the wings, find where the flap drive system is locked:
- 1) Open the access panels on the applicable wing:
 - a) If the flap drive system is locked on the left wing, open
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------------------|
| 573DR | Flap Support Fairing No. 3 Panel |
| 576CL | Flap Support Fairing No. 2 Panel |

EFFECTIVITY
ARO ALL

27-52 TASK 851

D633W103-ARO

Page 298.41
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
577DL	Flap Support Fairing No. 1 Panel

- b) If the flap drive system is locked on the right wing, open

<u>Number</u>	<u>Name/Location</u>
673DL	Flap Support Fairing No. 6 Panel
676CR	Flap Support Fairing No. 7 Panel
677DR	Flap Support Fairing No. 8 Panel

- 2) If the torque trip indicator shows tripped for a transmission, do these steps:

- Disconnect the torque tubes from the applicable transmission.
- Try to turn the torque tube couplings on the applicable transmission.
- If you cannot turn the transmission, disconnect the ballscrew from the transmission.
- Try to turn the torque tube couplings on the transmission.
- If you cannot turn an inboard flap inboard transmission, replace the applicable transmission.

These are the tasks:

Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801,
Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801.

- If you cannot turn an inboard flap outboard transmission, replace the applicable transmission.

These are the tasks:

Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802,
Inboard Flap Outboard Transmission Installation, AMM
TASK 27-51-15-400-802.

- If you cannot turn an outboard flap inboard transmission, replace the applicable transmission.

These are the tasks:

Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801,
Outboard Flap Inboard Transmission Installation, AMM
TASK 27-51-25-400-801.

- If you cannot turn an outboard flap outboard transmission, replace the applicable transmission.

These are the tasks:

Outboard Flap Outboard Transmission Removal, AMM
TASK 27-51-25-000-802,

Outboard Flap Inboard Transmission Installation, AMM
TASK 27-51-25-400-801.

- Try to turn the ballscrew on the applicable transmission.
- If you cannot turn the ballscrew for the inboard flap inboard transmission, replace the applicable ballscrew.

EFFECTIVITY
ARO ALL

27-52 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.42
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM
TASK 27-51-16-000-801,

Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-16-400-801.

- k) If you cannot turn the ballscrew for the inboard flap outboard transmission, replace the applicable ballscrew.

These are the tasks:

Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM
TASK 27-51-16-000-802,

Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-16-400-802.

- l) If you cannot turn the ballscrew for the outboard flap inboard transmission, replace the applicable ballscrew.

These are the tasks:

Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM
TASK 27-51-26-000-802,

Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-26-400-802.

- m) If you cannot turn the ballscrew for the outboard flap outboard transmission, replace the applicable ballscrew.

These are the tasks:

Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM
TASK 27-51-26-000-801,

Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-26-400-801.

- n) If it is necessary, connect the ballscrew to the transmission.
o) Connect the torque tubes to the applicable transmission.
p) Reset the torque trip indicator on the applicable transmission.
- 3) If none of the torque trip indicators show, or if you did not find a problem with a transmission or ballscrew, examine the other gearboxes for the flap drive system on the applicable wing:
- a) Disconnect the torque tubes from the applicable gearbox.
b) If you cannot manually turn the applicable gearbox, replace the gearbox.
c) Connect the torque tubes to the applicable gearbox.
- 4) Close these access panels on the left wing

<u>Number</u>	<u>Name/Location</u>
573DR	Flap Support Fairing No. 3 Panel
576CL	Flap Support Fairing No. 2 Panel
577DL	Flap Support Fairing No. 1 Panel

EFFECTIVITY
ARO ALL

27-52 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.43
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Close these access panels on the right wing

<u>Number</u>	<u>Name/Location</u>
673DL	Flap Support Fairing No. 6 Panel
676CR	Flap Support Fairing No. 7 Panel
677DR	Flap Support Fairing No. 8 Panel

- (h) Connect the torque tubes to the flap position sensor gearboxes.
- (i) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (j) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (k) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) If the flap drive system is not locked, use the alternate system to extend and retract the flaps. To extend and retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.

NOTE: This step is intended to find if the flaps do not extend, retract or do not operate at all with electric power.

- (5) If the flaps do not operate with the alternate system, then replace the flap electric motor, B27002.

These are the tasks:

Flap Electric Motor Removal, AMM TASK 27-51-34-000-801,

Flap Electric Motor Installation, AMM TASK 27-51-34-400-801.

- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (6) If the flaps do not extend with the alternate system, then replace the Flaps Extend Relay, K27004 on the P110 Panel (WDM 27-51-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) If the flaps do not retract with the alternate system, then replace the Flaps Retract Relay, K27006 on the P110 Panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-52 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.44
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (9) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (10) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (11) Remove FSEU 2, M27002 from the E4-1 shelf.
- (12) Do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and FSEU 2, M27002:
 - (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-17).
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27002 on the P110 panel (WDM 27-51-17):

DM27002AA	DK27002
pin D5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 rack.
 - 3) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.

EFFECTIVITY
ARO ALL

27-52 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.45
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (13) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
- (14) Open this circuit breaker and install safety tag:

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (15) Do this check of the wiring between the Flaps Extend Relay, K27004 and FSEU 2, M27002:
- (a) Remove the Flaps Extend Relay, K27004 from the P110 panel (WDM 27-51-17).
- (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27004 on the P110 panel (WDM 27-51-17):

DM27002AA	DK27004
pin D1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 rack.
 - 3) Re-install the Flaps Extend Relay, K27004 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

EFFECTIVITY
ARO ALL

27-52 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.46
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (16) Re-install the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-17).
- (17) Do this check of the wiring between the Flaps Retract Relay, K27006 and FSEU 2, M27002:
- (a) Remove the Flaps Retract Relay, K27006 from the P110 panel (WDM 27-51-17).
- (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27006 on the P110 panel (WDM 27-51-17):

<u>DM27002AA</u>	<u>DK27006</u>
pin G1	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 rack.
 - 3) Re-install the Flaps Retract Relay, K27006 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (18) Do this check of the wiring between the Flaps Retract Relay, K27006 and the flap electric motor, B27002:

EFFECTIVITY
ARO ALL

27-52 TASK 851

D633W103-ARO

Page 298.47
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) Disconnect the electrical connector DB27002 from the flap electric motor, B27002 in the right wheel well.
- (d) Do a wiring check between these pins of connector DB27002 on the flap electric motor and connector DK27006 on the P110 panel (WDM 27-51-18):

DB27002

pin 1 pin A2
pin 2 pin B2
pin 3 pin C2

DK27006

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect electrical connector DB27002 to the flap electric motor.
 - 3) Re-install the Flaps Retract Relay, K27006 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-52 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.48
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (19) Re-install the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-17).
- (20) Do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and the flap electric motor, B27002:
- (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel.
 - (b) Do a wiring check between these pins of connector DB27002 on the flap electric motor and connector DK27002 on the P110 panel (WDM 27-51-17):

DB27002	DK27002
pin 6	pin B2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect electrical connector DB27002 to the flap electric motor.
 - 3) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (21) Connect the electrical connector DB27002 to the flap electric motor, B27002 in the right wheel well.
- (22) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
- (23) Do this check of the wiring between the Flaps Extend Relay, K27004 and the Flaps Retract Relay, K27006:
 - (a) Remove the Flaps Extend Relay, K27004 from the P110 panel (WDM 27-51-18).
 - (b) Remove the Flaps Retract Relay, K27006 from the P110 panel (WDM 27-51-18).
 - (c) Do a wiring check between these pins of connector DK27004 on and connector DK27006 on the P110 panel (WDM 27-51-18):

EFFECTIVITY
ARO ALL

27-52 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.49
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DK27004	DK27006
pin A1	pin A3
pin A3	pin A1
pin B1	pin B3
pin B3	pin C1
pin C1	pin C3
pin C3	pin B1

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the Flaps Extend Relay, K27004 on the P110 panel.
 - 3) Re-install the Flaps Retract Relay, K27006 on the P110 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

Row	Col	Number	Name
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (24) Re-install the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-17).
- (25) Re-install the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-17).
- (26) Do this check of the wiring between the Flaps Bypass/Clutch Relay, K27002 and the flap primary control valve, V27004 in the right main wheel well:
 - (a) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel (WDM 27-51-17).
 - (b) Disconnect electrical connector DV27004A from the flap primary control valve, V27004.
 - (c) Do a wiring check between these pins of connector DK27002 on the P110 panel and connector DV27004A on the flap primary control valve (WDM 27-51-17):

DK27002	DV27004A
pin A2	pin 16

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-52 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.50
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel.
- 3) Re-connect connector DV27004A to the flap primary control valve, V27004.
- 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (27) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

852. Flap Position Sensor Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25322.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-52 TASKS 851-852

D633W103-ARO

Page 298.51
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a check of the torque tubes between the flap power drive unit (PDU) and the flap position sensor gearboxes in the left and right wheel wells.
 - (a) If the torque tubes are broken or disconnected, connect or replace the torque tubes.

These are the tasks:

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

 - 1) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 2) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If you do not find a problem with the torque tubes, then continue.
- (4) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

 - (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.

- (5) Use the alternate system to retract the flaps to the retracted position. To retract them, do this task: Trailing Edge Flap System Operation With Alternate Control, AMM TASK 27-51-00-860-802.
- (6) Look at the FLAP POS L2 and FLAP POS R2 indications on the FLAP/SLAT maintenance page on EICAS.
 - (a) Replace the flap position sensor for the flap position indication which is further from 10.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

EFFECTIVITY
ARO ALL

27-52 TASK 852

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.52
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

NOTE: The flap position sensor for FLAP POS L2 is M27201 in the left wheel well. The flap position sensor for FLAP POS R2 is M27202 in the right wheel well.

- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (7) Replace the other flap position sensor 2L, M27201 or 2R, M27202.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (8) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (9) Remove FSEU 2, M27002 from the E4-1 shelf.
- (10) Do a check of the wiring between FSEU 2 and the flap position sensor 2L, M27201:
 - (a) Disconnect the connector DM27201 from flap position sensor 2L, M27201.
 - (b) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27201 at the flap position sensor 2L, M27201 (WDM 27-58-12):

DM27002AC	DM27201
pin K3	pin 1
pin J3	pin 2
pin G9	pin 3
pin G10	pin 4
pin F9	pin 5
pin F10	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27201.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-52 TASK 852

D633W103-ARO

Page 298.53
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you did not find a problem with the wiring, then continue.
- (e) Connect the connector DM27201 to flap position sensor 2L, M27201.
- (11) Do a check of the wiring between FSEU 2 and the flap position sensor 2R, M27202:
 - (a) Disconnect the connector DM27202 from flap position sensor 2R, M27202.
 - (b) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27202 at the flap position sensor 2R, M27202 (WDM 27-58-12):

DM27002AA		DM27202	
pin A3	.....	pin 1	
pin B3	.....	pin 2	
pin D9	.....	pin 3	
pin D10	.....	pin 4	
pin E9	.....	pin 5	
pin E10	.....	pin 6	

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27202.
 - 4) Remove the safety tags and close these circuit breakers:
- | Right Power Management Panel, P210 | | | |
|------------------------------------|-----|--------|------------|
| Row | Col | Number | Name |
| F | 21 | C27514 | SNSR EXC 2 |
| K | 4 | C27602 | FSEU 2 |
- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (d) Connect the connector DM27202 to flap position sensor 2R, M27202.
 - (12) Re-install FSEU 2, M27002 on the E4-1 shelf.
 - (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-52 TASK 852

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.54
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (14) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— END OF TASK —————

853. Flaps Extend Solenoid Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25492.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

EFFECTIVITY
ARO ALL

27-52 TASKS 852-853

D633W103-ARO

Page 298.55
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (6) Do this wiring check of the Primary Extend Solenoid on the flap primary control valve, V27004:
- Do a check of the resistance between pins 11 and 15 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):
 - If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - Replace the Primary Extend solenoid on the flap primary control valve, V27004.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
- NOTE:** This does a check of the internal wiring on the primary control valve, V27004.
- If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - If the resistance between the pins is in the limit, then continue.
- (3) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
- (4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.

EFFECTIVITY
ARO ALL

27-52 TASK 853

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.56
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If there is continuity between the pins, then continue.
- (7) Do this wiring check between the flap primary control valve, V27004 and the P210 panel:
 - (a) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

D21026P	DV27004B
pin 13	pin 15

- (b) If there is a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (9) Remove FSEU 2, M27002 from the E4-1 shelf.
- (10) Do this wiring check between the flap Primary Extend Solenoid and FSEU 2:
 - (a) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

DM27002AC	DV27004B
pin G1	pin 11

- (b) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-52 TASK 853

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.57
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install FSEU 2, M27002.
- 3) Re-connect connector DV27004B.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

854. Flaps Retract Solenoid Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25502.

EFFECTIVITY
ARO ALL

27-52 TASKS 853-854

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.58
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (6) Do this wiring check of the Primary Retract Solenoid on the flap primary control valve, V27004:
 - (a) Do a check of the resistance between pins 4 and 14 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

EFFECTIVITY
ARO ALL

27-52 TASK 854

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.59
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

- 1) Replace the Primary Retract solenoid on the flap primary control valve, V27004.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.

- 2) Do a check of the resistance between pins 4 and 14 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-16).

NOTE: This does a check of the internal wiring on the primary control valve, V27004.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,

Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.

- 3) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (c) If there is continuity between the pins, then continue.

- (7) Do this wiring check between the flap primary control valve, V27004 and the P210 panel:

- (a) Do a wiring check between these pins on connector D21026P at the P210 standby power management panel and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

D21026P	DV27004B
pin 13	pin 14

- (b) If there is a problem with the wiring, do these steps:

- 1) Repair the wiring.

- 2) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.

EFFECTIVITY
ARO ALL

27-52 TASK 854

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.60
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

(c) If you do not find a problem with the wiring, then continue.

- (8) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (9) Remove FSEU 2, M27002 from the E4-1 shelf.
- (10) Do this wiring check between the flap Primary Retract Solenoid and FSEU 2:
- (a) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

DM27002AC	DV27004B
pin D1	pin 4

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.

EFFECTIVITY
ARO ALL

27-52 TASK 854

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.61
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

855. Flaps Low Speed Solenoid Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25512.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.

EFFECTIVITY
ARO ALL

27-52 TASKS 854-855

D633W103-ARO

Page 298.62
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27004B from the flap primary control valve, V27004 in the right wheel well.
- (6) Do this wiring check of the Primary Low Speed Solenoid on the flap primary control valve, V27004:
 - (a) Do a check of the resistance between pins 5 and 12 of connector DV27004B on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):
 - (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the Primary Low Speed solenoid on the flap primary control valve, V27004.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
 - 2) Do a check of the resistance between pins 5 and 12 of connector DV27004B on the flap primary control valve, V27004 again (WDM 27-51-16).
NOTE: This does a check of the internal wiring on the primary control valve, V27004.
 - a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.

EFFECTIVITY
ARO ALL

27-52 TASK 855

D633W103-ARO

Page 298.63
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.
- 3) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If there is continuity between the pins, then continue.
- (7) Do this wiring check between the flap primary control valve, V27004 and the P210 panel:
 - (a) Do a wiring check between these pins on connector D21026P at the P210 standby power management panel and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

D21026P	DV27004B
pin 13	pin 5

- (b) If there is a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Connect electrical connector DV27004B to the flap primary control valve, V27004 in the right wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-52 TASK 855

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.64
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:
- Right Power Management Panel, P210**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|-------------|
| F | 21 | C27514 | SNSR EXC 2 |
| K | 4 | C27602 | FSEU 2 |
- (9) Remove FSEU 2, M27002 from the E4-1 shelf.
- (10) Do this wiring check between the flap Primary Low Speed Solenoid and FSEU 2:
- (a) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004B at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

DM27002AC	DV27004B
pin F1	pin 12

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27004B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27004B to the flap primary control valve, V27004.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-52 TASK 855

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.65
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

856. Flaps Shutoff Solenoid Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25522.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-52 TASKS 855-856

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.66
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27004A from the flap primary control valve, V27004 in the right wheel well.
- (6) Do this wiring check of the Primary Shutoff Solenoid on the flap primary control valve, V27004:
 - (a) Do a check of the resistance between pins 12 and 14 of connector DV27004A on the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):
 - (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the Primary Shutoff solenoid on the flap primary control valve, V27004.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-51-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-51-05-400-802.
 - 2) Do a check of the resistance between pins 12 and 14 of connector DV27004A on the flap primary control valve, V27004 again (WDM 27-51-16).
NOTE: This does a check of the internal wiring on the primary control valve, V27004.
 - a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the flap primary control valve, V27004.
These are the tasks:
Flap Primary Control Valve Removal, AMM TASK 27-51-05-000-801,
Flap Primary Control Valve Installation, AMM TASK 27-51-05-400-801.
 - b) If the resistance between the pins is in the limit, then continue.
 - 3) Connect electrical connector DV27004A to the flap primary control valve, V27004 in the right wheel well.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-52 TASK 856

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.67
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If there is continuity between the pins, then continue.
- (7) Do this wiring check between the flap primary control valve, V27004 and the P210 panel:
 - (a) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DV27004A at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

D21026P	DV27004A
pin 13	pin 14

- (b) If there is a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Connect electrical connector DV27004A to the flap primary control valve, V27004 in the right wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (9) Remove FSEU 2, M27002 from the E4-1 shelf.
- (10) Do this wiring check between the flap Primary Shutoff Solenoid and FSEU 2:
 - (a) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27004A at the flap primary control valve, V27004 in the right wheel well (WDM 27-51-16):

EFFECTIVITY
ARO ALL

27-52 TASK 856

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.68
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AC

pin G5

DV27004A

pin 12

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27004A.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27004A to the flap primary control valve, V27004.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	9	C27632	FLAPS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-52 TASK 856

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.69
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— END OF TASK —————

857. Flaps Extend Relay Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25532.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.
- (2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (3) Replace the Flaps Extend Relay, K27004 on the P110 power management panel (WDM 27-51-18).
- (4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-52 TASKS 856-857

D633W103-ARO

Page 298.70
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check between the Flaps Extend Relay and FSEU 2:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove the Flaps Extend Relay, K27004 from the P110 panel.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27004 at the P110 panel (WDM 27-51-17):

DM27002AA	DK27004
pin D1	pin X2

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-install the Flaps Extend Relay, K27004.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-52 TASK 857

D633W103-ARO

Page 298.71
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
- (7) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Re-install the Flaps Extend Relay, K27004 on the P110 panel (WDM 27-51-18).
- (9) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

858. Flaps Retract Relay Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25542.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-52 TASKS 857-858

D633W103-ARO

Page 298.72
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.

1) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.

- (2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (3) Replace the Flaps Retract Relay, K27006 on the P110 power management panel (WDM 27-51-18).

- (4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.

- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (b) If the maintenance message shows on the ground test display, then continue.

- (6) Do this wiring check between the Flaps Retract Relay and FSEU 2:

- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-52 TASK 858

D633W103-ARO

Page 298.73
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove the Flaps Retract Relay, K27006 from the P110 panel.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27006 at the P110 panel (WDM 27-51-17):

<u>DM27002AA</u>	<u>DK27006</u>
pin G1	pin X2

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-install the Flaps Retract Relay, K27004.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (7) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Re-install the Flaps Retract Relay, K27006 on the P110 panel (WDM 27-51-18).
- (9) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-52 TASK 858

D633W103-ARO

Page 298.74
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Left Power Panel, P100

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C27301	FLAPS ELEC MOT PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

859. Flaps Bypass/Clutch Relay Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25552.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.
- (2) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (3) Replace the Flaps Bypass/Clutch Relay, K27002 on the P110 power management panel (WDM 27-51-17).

EFFECTIVITY
ARO ALL

27-52 TASKS 858-859

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.75
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check between the Flaps Bypass/Clutch Relay and FSEU 2:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove the Flaps Bypass/Clutch Relay, K27002 from the P110 panel.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27002 at the P110 panel (WDM 27-51-17):

DM27002AA	DK27002
pin D5	pin X2

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-install the Flaps Bypass/Clutch Relay, K27002.
 - 4) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-52 TASK 859

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.76
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) If you do not find a problem with the wiring, then continue.
- (7) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Re-install the Flaps Bypass/Clutch Relay, K27002 on the P110 panel (WDM 27-51-17).
- (9) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	17	C27631	FLAPS ELEC CTRL RLY PWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

— END OF TASK —

860. Flaps Skew and Position Sensor Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25582.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only:
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - 1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the MAT does not show PASSED after the ground test, then continue.
- (2) Look for broken or disconnected torque tubes for the flap drive system:

NOTE: It is likely that there are broken or disconnected torque tubes between the flap position sensor gearboxes and flap supports No. 1 and 8.

EFFECTIVITY
ARO ALL

27-52 TASKS 859-860

D633W103-ARO

Page 298.77
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task:
Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) Look at the torque tubes in the main landing gear wheel wells outboard of the position sensor gearboxes to see if they are broken or disconnected.
- (d) Look at the torque tubes between flap support No. 1 and No. 2.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- (e) Look at the torque tubes between flap supports No. 2 and No. 3.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (f) Look at the torque tubes between flap supports No. 3 and No. 4.

- 1) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- (g) Look at the torque tubes between flap supports No. 5 and No. 6.

- 1) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-52 TASK 860

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.78
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (h) Look at the torque tubes between flap supports No. 6 and No. 7.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- (i) Look at the torque tubes between flap support No. 7 and No. 8.

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- (j) If you see broken or disconnected torque tubes, replace the applicable torque tubes:

- 1) If it is necessary, replace an outboard wing flap torque tube.

These are the tasks:

Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,

Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.

- 2) If it is necessary, replace an inboard wing flap torque tube.

These are the tasks:

Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,

Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.

- 3) If it is necessary, replace a torque tube in the wheel well.

These are the tasks:

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,

Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

- (k) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

- (l) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (m) Install the applicable access panels:

- 1) Install these access panels between flap supports No. 1 and No. 2:

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-52 TASK 860

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.79
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Install these access panels between flap supports No. 2 and 3:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 3) Install these access panels between flap supports No. 3 and No. 4:

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- 4) Install these access panels between flap supports No. 5 and No. 6:

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

- 5) Install these access panels between flap supports No. 6 and No. 7:

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- 6) Install these access panels between flap supports No. 7 and No. 8:

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (n) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
(o) If you do not see broken or disconnected torque tubes, then continue.
(3) Replace the flap skew sensors L1 B, M27331 and R8 B, M27330.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-52 TASK 860

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.80
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (4) Replace flap position sensors 2L, M27201 and 2R, M27202.

These are the tasks:

Flap Position Sensor Removal, AMM TASK 27-58-03-000-801,

Flap Position Sensor Installation, AMM TASK 27-58-03-400-801.

- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

861. FSEU Problem During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25592.

B. Fault Isolation Procedure

- (1) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this check of the wiring:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins at the E4-1 shelf and ground (WDM 27-51-12):

DM27002AC	ground
Pin B1	ground

DM27002AA	ground
Pin K2	ground

- (d) If you find a problem with the wiring, then repair the wiring.
- (e) Re-install FSEU 2, M27002.

EFFECTIVITY
ARO ALL

27-52 TASKS 860-861

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.81
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (g) Cycle the ALT ARM switch until FSEU 2 is IN CONTROL.

NOTE: This will cause FSEU 2 to do a self test.

- (h) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

862. Test ID Problem During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25602.

B. Fault Isolation Procedure

- (1) The requested test function does not exist in the current version of the FSEU. Update the software in FSEU 2, M27002, do this task: Flap/Slat Electronics Unit (FSEU) Software Installation, AMM TASK 27-51-01-400-802.
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

863. Sensor Excitation Voltage Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25612.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2:
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C24448	R 28V BUS
F	21	C27514	SNSR EXC 2

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2.

EFFECTIVITY
ARO ALL

27-52 TASKS 861-863

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.82
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, then continue.
- (2) Do this wiring check between FSEU 2, M27002 and the P210 panel:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DM27002AA at the E4-1 shelf (WDM 27-51-12):

D21026P	DM27002AA
pin 31	pin A1

- (d) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DM27002AC at the E4-1 shelf (WDM 27-51-12):

D21026P	DM27002AC
pin 31	pin K1

- (e) If there is a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Connect re-install FSEU 2, M27002 on the E4-1 shelf.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (3) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-52 TASK 863

D633W103-ARO

Page 298.83
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

———— **END OF TASK** ————

864. Flap Lever Sensor Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25622.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2:
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Push the ALTN FLAPS ARM switch on the control stand.
NOTE: This is to make sure the flaps do not move during the following steps.
- (2) Move the flap control lever to the 30-unit position.
- (3) Look at the FLAP LEVER indications on the FLAP/SLAT maintenance page on EICAS.
 - (a) If the FLAP LEVER indications are not less than 2.87, then adjust the link between the flap lever position sensor and the flap lever.
 - 1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - (b) If the FLAP LEVER indications are less than 2.87, then continue
- (4) Move the flap control lever to the UP position.
- (5) Look at the FLAP LEVER indications on the FLAP/SLAT maintenance page on EICAS.
 - (a) If the FLAP LEVER indications are not more than 9.44, then adjust the link between the flap lever position sensor and the flap lever.
 - 1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - (b) If the FLAP LEVER indications are less than 9.44, then continue
- (6) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate system.
- (7) Replace the Flap Lever Position Sensor, M27037.

These are the tasks:

EFFECTIVITY
ARO ALL

27-52 TASKS 863-864

D633W103-ARO

Page 298.84
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap Lever Position Sensor Removal, AMM TASK 27-51-03-000-801,

Flap Lever Position Sensor Installation, AMM TASK 27-51-03-400-801.

- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (8) Do this wiring check between FSEU 2, M27002 and the flap lever position sensor, M27037:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect connectors DM27037C and DM27037D for the flap lever position sensors.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DM27037C for the flap lever position sensor, M27037 (WDM 27-51-13):

DM27002AA	DM27037C
pin A2	pin 1
pin B2	pin 2
pin A9	pin 4
pin B9	pin 5

- (e) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DM27037D for the flap lever position sensor, M27037 (WDM 27-51-13):

DM27002AC	DM27037D
pin K2	pin 1
pin J2	pin 2
pin K9	pin 4
pin J9	pin 5

- (f) If there is a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connectors DM27037C and DM27037D for the flap lever position sensors.
 - 3) Connect re-install FSEU 2, M27002 on the E4-1 shelf.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-52 TASK 864

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.85
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (9) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (10) Remove the safety tags and close these circuit breakers:
Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
- (11) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

END OF TASK

865. Airplane Type Program Pin Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21302.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check to see if the fault is in FSEU 2:
 - (a) Open these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Exchange FSEU 1, M27001 (E1-6 shelf) with FSEU 2, M27002 (E4-1 shelf).

EFFECTIVITY
ARO ALL

27-52 TASKS 864-865

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.86
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (d) If the MAT Existing Faults display shows ACTIVE for maintenance message 27-21301, then do these steps:

- 1) Replace FSEU 1 (this is the FSEU initially installed in the position of FSEU 2).

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- 2) If the MAT Existing Faults display shows NOT ACTIVE for maintenance message 27-21301 (or if the message does not show), then you corrected the fault.

- (e) If the MAT Existing Faults display shows ACTIVE for maintenance message 27-21302, then continue.

- (2) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (3) Remove FSEU 2, M27002 from the E4-1 shelf.

- (4) Do this check of the wiring for the program pins for FSEU 2, M27002:

- (a) Do a check to make sure these pins at the E1-6 shelf are connected to ground (WDM 27-51-12):

- 1) Connector DM27002AA, Pin K2
- 2) Connector DM27002AC, Pin A2
- 3) Connector DM27002AC, Pin A8
- 4) Connector DM27002AC, Pin B1

- (b) Do a check to make sure these pins at the E4-1 shelf are not connected to ground (WDM 27-50-09):

- 1) Connector DM27002AA, Pin J1
- 2) Connector DM27002AA, Pin K1
- 3) Connector DM27002AA, Pin K3
- 4) Connector DM27002AA, Pin K4
- 5) Connector DM27002AA, Pin K5
- 6) Connector DM27002AA, Pin K6

EFFECTIVITY
ARO ALL

27-52 TASK 865

D633W103-ARO

Page 298.87
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 7) Connector DM27002AA, Pin K7
 - 8) Connector DM27002AA, Pin K8
 - 9) Connector DM27002AC, Pin A1
 - 10) Connector DM27002AC, Pin A3
 - 11) Connector DM27002AC, Pin A4
 - 12) Connector DM27002AC, Pin A5
 - 13) Connector DM27002AC, Pin A6
 - 14) Connector DM27002AC, Pin A7
- (c) If you find a problem with the wiring, then repair the wiring.
- (5) Re-install FSEU 2, M27002 on the E4-1 shelf.
- (6) Remove the safety tags and close these circuit breakers:
- Right Power Management Panel, P210**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|-------------|
| F | 21 | C27514 | SNSR EXC 2 |
| K | 4 | C27602 | FSEU 2 |
- (7) If the MAT Existing Faults display does not show ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-52 TASK 865

D633W103-ARO

Page 298.88
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

801. Flap Skew Sensor 1 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20281.

B. Description

- (1) There is one Skew Sensor installed at Flap Supports 1 and 2.
 - (a) Sensor M27338 is installed at Flap Support No. 1.
 - (b) Sensor M27339 is installed at Flap Support No. 2.

C. Possible Causes

- (1) Flap Skew Sensor L1 A, M27338
- (2) Wiring
- (3) Flap/Slat Electronics Unit (FSEU) 1, M27001

D. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

E. Related Data

- (1) WDM 27-59-11

F. Initial Evaluation

- (1) Use the Primary System to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT Maintenance Page on the EICAS Display to make sure that FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM Switch to put FSEU 1 IN CONTROL.

- (a) If the Maintenance Access Terminal (MAT) shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

G. Fault Isolation Procedure - With Flap Skew Detection Redesign

- (1) Replace the Flap Skew Sensor L1 A, M27338 on Flap Support-1. These are the tasks:
 - Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002
 - Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002
 - (a) Do the Repair Confirmation at the end of this task.
- (2) Do a wiring check between the FSEU 1 and Flap Skew Sensor L1 A, M27338 as follows (WDM 27-59-11):
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

EFFECTIVITY
ARO ALL

27-59 TASK 801

D633W103-ARO

Page 201
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C27601	FSEU 1

- (b) Disconnect the electrical connector, DM27338A from the Flap Skew Sensor L1 A, M27338.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (d) Examine the wiring as follows:

FSEU 1	SKEW SNSR
M27001AC	L1A
	DM27338A
pin J11	pin 5
pin K11	pin 6

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - 3) Re-connect connector DM27338A.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do the Repair Confirmation at the end of this task.
- (f) If you do not find a problem with the wiring, continue.
- (3) Do a wiring check between Flap Skew Sensors L1 A, M27338 and L2 B, M27339 (WDM 27-59-11):
 - (a) Disconnect the electrical connector, DM27339B from the Flap Skew Sensor L2 B, M27339.
 - (b) Examine the wiring as follows :

SKEW SNSR	SKEW SNSR
L1A	L2B
DM27338A	DM27339B
pin 1	pin 2
pin 3	pin 4

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27338A.
 - 3) Re-connect connector DM27339B.

EFFECTIVITY
ARO ALL

27-59 TASK 801

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 202
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 4) Re-install FSEU 1, M27001. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 6) Do the Repair Confirmation at the end of this task.
- (d) If you do not find a problem with the wiring, continue.
- (4) Install a new FSEU 1, M27001. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (5) Re-connect the electrical connector, DM27338A on the Flap Skew Sensor L1 A.
- (6) Re-connect the electrical connector, DM27339B on the Flap Skew Sensor L2 B.
- (7) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (8) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Use the Primary System to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT Maintenance Page on the EICAS Display to make sure that FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM Switch to put FSEU 1 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

802. Flap Skew Sensor 2 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20291.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor L2 A, M27325 on the number 2 flap support mechanism.
These are the tasks:

EFFECTIVITY
ARO ALL

27-59 TASKS 801-802

D633W103-ARO

Page 203
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 1, M27001 and flap skew sensor L2 A, M27325:
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect the electrical connector, DM27325 from the flap skew sensor L2 A, M27325.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27325 at the flap skew sensor L2 A, M27325 (WDM 27-59-11):

DM27001AC	DM27325
pin F11	pin 5
pin G11	pin 6

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27325.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (f) If you did not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Re-connect the electrical connector, DM27325 on the flap skew sensor L2 A.

EFFECTIVITY
ARO ALL

27-59 TASK 802

D633W103-ARO

Page 204
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

— END OF TASK —

803. Flap Skew Sensor 3 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20301.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor L3 A, M27327 on the number 3 flap support mechanism.

These are the tasks:

Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,

Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 1, M27001 and flap skew sensor L3 A, M27327:
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect the electrical connector, DM27327 from the flap skew sensor L3 A, M27327.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27327 at the (WDM 27-59-11):

EFFECTIVITY
ARO ALL

27-59 TASKS 802-803

D633W103-ARO

Page 205
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27001AC

pin C11 pin 5
pin D11 pin 6

DM27327

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27327.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

- (f) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.

- (3) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Re-connect the electrical connector, DM27327 on the flap skew sensor L3 A.
- (5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-59 TASK 803

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 206
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

804. Flap Skew Sensor 4 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20311.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor L4 A, M27329 on the number 4 flap support mechanism.

These are the tasks:

Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,

Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 1, M27001 and flap skew sensor L4 A, M27329:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect the electrical connector, DM27329 from the flap skew sensor L4 A, M27329.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27329 at the flap skew sensor L4 A, M27329 (WDM 27-59-11):

<u>DM27001AC</u>		<u>DM27323</u>	
pin A10	.....	pin 5	
pin A11	.....	pin 6	

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27329.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-59 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 207
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- f) If you do not find problems with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Re-connect the electrical connector, DM27329 on the flap skew sensor L4 A.
- (5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

— END OF TASK —

805. Flap Skew Sensor 5 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20321.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor R5 A, M27328 on the number 5 flap support mechanism.

These are the tasks:

Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,

Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

EFFECTIVITY
ARO ALL

27-59 TASKS 804-805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 208
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 1, M27001 and flap skew sensor R5 A, M27328
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect the electrical connector, DM27328 from the flap skew sensor R5 A, M27328.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27328 at the flap skew sensor R5 A, M27328 (WDM 27-59-13):

DM27001AA	DM27328
pin K10	pin 5
pin K11	pin 6

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27328.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (f) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Re-connect the electrical connector, DM27328 on the flap skew sensor R5 A.
- (5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-59 TASK 805

D633W103-ARO

Page 209
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

806. Flap Skew Sensor 6 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20331.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor R6 A, M27326 on the number 6 flap support mechanism.

These are the tasks:

Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,

Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 1, M27001 and flap skew sensor R6 A, M27326:
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect the electrical connector, DM27326 from the flap skew sensor R6 A, M27326.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27326 at the flap skew sensor R6 A, M27326 (WDM 27-59-13):

DM27001AA		DM27326
pin H11	.....	pin 5
pin G11	.....	pin 6

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-59 TASKS 805-806

D633W103-ARO

Page 210
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install FSEU 1, M27001.
- 3) Re-connect connector DM27326.
- 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (f) If you do not a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Re-connect the electrical connector, DM27326 on the flap skew sensor R6 A.
- (5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

807. Flap Skew Sensor 7 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20341.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-59 TASKS 806-807

D633W103-ARO

Page 211
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor R7 A, M27324 on the number 7 flap support mechanism.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 1, M27001 and flap skew sensor R7 A, M27324:
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect the electrical connector, DM27324 from the flap skew sensor R7 A, M27324.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27324 at the flap skew sensor R7 A, M27324 (WDM 27-59-13):

DM27001AA	DM27324
pin E11	pin 5
pin D11	pin 6

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27324.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (f) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-59 TASK 807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 212
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (3) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Re-connect the electrical connector, DM27324 on the flap skew sensor R7 A.
- (5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

808. Flap Skew Sensor 8 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20351.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor R8 A, M27322 on the number 8 flap support mechanism.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 1, M27001 and flap skew sensor R8 A, M27322:

- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect the electrical connector, DM27322 from the flap skew sensor R8 A, M27322.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.

EFFECTIVITY
ARO ALL

27-59 TASKS 807-808

D633W103-ARO

Page 213
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27322 at the flap skew sensor R8 A, M27322 (WDM 27-59-13):

DM27001AA	DM27322
pin B11	pin 5
pin A11	pin 6

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27322.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (f) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do a wiring check between flap skew sensor R7 A, M27324 and flap skew sensor R8 A, M27322:
- (a) Disconnect the electrical connector, DM27324 from the flap skew sensor R7 A, M27324.
- (b) Do a wiring check between these pins of connector DM27324 at the flap skew sensor R7 A, M27324 and connector DM27322 at the flap skew sensor R8 A, M27322 (WDM 27-59-13):

DM27324	DM27322
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27322.
 - 3) Re-connect connector DM27324.
 - 4) Re-install FSEU 1, M27001.

EFFECTIVITY
ARO ALL

27-59 TASK 808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 214
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (5) Re-connect the electrical connector, DM27322 on the flap skew sensor R8 A.
- (6) Re-connect the electrical connector, DM27324 on the flap skew sensor R7 A.
- (7) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (8) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— END OF TASK —————

809. Flap Skew Sensors 1 and 8 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20651.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-59 TASKS 808-809

D633W103-ARO

Page 215
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor R8 A, M27322 on the number 8 flap support mechanism.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the flap skew sensor L1 A, M27323 on the number 1 flap support mechanism.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (4) Do a wiring check between FSEU 1, M27001 and flap skew sensor R8 A, M27322:
- (a) Disconnect the electrical connector DM27322 from the flap skew sensor R8 A, M27322.
- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27322 at the flap skew sensor R8 A, M27322 (WDM 27-59-13):

DM27001AA	DM27322
pin B11	pin 5
pin A11	pin 6

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
- 2) Re-install FSEU 1, M27001.
- 3) Re-connect connector DM27322.
- (e) If you do not find a problem with the wiring, then continue.
- (5) Do a wiring check between FSEU 1, M27001 and flap skew sensor L1 A, M27323.
- (a) Disconnect electrical connector DM27323 from the flap skew sensor L1 A, M27323.
- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27323 at the flap skew sensor L1 A, M27323 (WDM 27-59-11):

EFFECTIVITY
ARO ALL

27-59 TASK 809

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 216
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27001AC

pin J11 pin 5
pin K11 pin 6

DM27323

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27323.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between flap skew sensor R8 A, M27322 and flap skew sensor R7 A, M27324:
 - (a) Disconnect the electrical connector DM27324 from the flap skew sensor R7 A, M27324.
 - (b) Do a wiring check between these pins of connector DM27324 at the flap skew sensor R7 A, M27324 and connector DM27322 at the flap skew sensor R8 A, M27322 (WDM 27-59-13):

DM27324

pin 2 pin 1
pin 4 pin 3

DM27322

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27322.
 - 4) Re-connect connector DM27324.
- (d) If you do not find a problem with the wiring, then continue.
- (7) Do a wiring check between flap skew sensor L1 A, M27323 and flap skew sensor L2 A, M27325:
 - (a) Disconnect the electrical connector DM27325 from the flap skew sensor L2 A, M27325.
 - (b) Do a wiring check between these pins of connector DM27325 at the flap skew sensor L2 A, M27325 and connector DM27323 at the flap skew sensor L1 A, M27323 (WDM 27-59-11):

DM27325

pin 2 pin 1
pin 4 pin 3

DM27323

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27325.
 - 4) Re-connect connector DM27323.
- (d) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-59 TASK 809

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 217
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (8) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (9) Re-connect connector DM27322.
- (10) Re-connect connector DM27323.
- (11) Re-connect connector DM27324.
- (12) Re-connect connector DM27325.
- (13) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (14) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

810. Flap Support No. 1 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20461.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 1 and transmission No. 2:

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

EFFECTIVITY
ARO ALL

27-59 TASKS 809-810

D633W103-ARO

Page 218
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Replace the applicable torque tube, torque tube support or no-back brake:
 - a) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
 - b) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.
- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.
- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel
- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the
maintenance message, then you corrected the fault.
 - (c) If you do not see a broken torque tube, then continue.
- (2) For flap support No. 1, do this task: Outboard Flap Support Fairing Removal, AMM
TASK 27-51-28-000-801.
- (3) Visually examine these components and replace those that have damage:
 - (a) Ballscrew and gimbal.
These are the tasks:
Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801,
Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-26-400-801.
 - (b) Transmission and yoke.
These are the tasks:
Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802,
Outboard Flap Outboard Transmission Installation, AMM TASK 27-51-25-400-802.
 - (c) Flap support mechanism.
These are the tasks:
Outboard Flap Outboard Support Mechanism Removal, AMM TASK 27-51-22-000-801,
Outboard Flap Outboard Support Mechanism - Installation, AMM
TASK 27-51-22-400-801.
- (4) If you replaced a component above, do this ground test on the MAT: 27 High Lift System,
System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message,
then you corrected the fault.

EFFECTIVITY
ARO ALL

27-59 TASK 810

D633W103-ARO

Page 219
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) For flap support No. 1, do this task: Outboard Flap Support Fairing Installation, AMM TASK 27-51-28-400-801.
- (6) Replace the FSEU 1, M27001.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (7) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE:** Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (8) Replace the two flap skew sensors M27323 and M27331 at flap support No. 1.
- These are the tasks:
- Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.
- (9) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (10) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 1
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27323 from the flap skew sensor M27323.

EFFECTIVITY
ARO ALL

27-59 TASK 810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 220
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) Disconnect the connector DM27331 from the flap skew sensor M27331.
- (f) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27323 at the flap skew sensor, M27323 (WDM 27-59-11):

DM27001AC	DM27323
pin J11	pin 5
pin K11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27331 at the flap skew sensor, M27331 (WDM 27-59-12):

DM27002AC	DM27331
pin J11	pin 5
pin K11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27323.
- (l) Reconnect connector DM27331.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (11) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (12) Do this check of the wiring between the flap skew sensors on the flap supports No. 1 and No. 2:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

EFFECTIVITY
ARO ALL

27-59 TASK 810

D633W103-ARO

Page 221
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (b) Disconnect the connector DM27323 from the flap skew sensor M27323.
- (c) Disconnect the connector DM27331 from the flap skew sensor M27331.
- (d) Disconnect the connector DM27325 from the flap skew sensor M27325.
- (e) Disconnect the connector DM27333 from the flap skew sensor M27333.
- (f) Do a wiring check between these pins of connector DM27325 at the flap skew sensor, M27325 and connector DM27323 at the flap skew sensor, M27323 (WDM 27-59-11):

DM27325	DM27323
pin 2	pin 1
pin 4	pin 3

- (g) Do a wiring check between these pins of connector DM27333 at the flap skew sensor, M27333 and connector DM27331 at the flap skew sensor, M27331 (WDM 27-59-12):

DM27333	DM27331
pin 2	pin 1
pin 4	pin 3

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Reconnect connector DM27325.
- (j) Reconnect connector DM27333.
- (k) Reconnect connector DM27323.
- (l) Reconnect connector DM27331.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (13) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (14) Replace the two flap skew sensors M27322 and M27330 at flap support No. 8.

EFFECTIVITY
ARO ALL

27-59 TASK 810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 222
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (15) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (16) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 8:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27322 from the flap skew sensor M27322.
- (e) Disconnect the connector DM27330 from the flap skew sensor M27330.
- (f) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27322 at the flap skew sensor, M27322 (WDM 27-59-13):

DM27001AA	DM27322
pin B11	pin 5
pin A11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27330 at the flap skew sensor, M27330 (WDM 27-59-14):

DM27002AA	DM27330
pin B11	pin 5
pin A11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27322.
- (l) Reconnect connector DM27330.

EFFECTIVITY
ARO ALL

27-59 TASK 810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 223
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (17) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (18) Do this check of the wiring between the flap skew sensors on the flap supports No. 7 and No. 8:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (b) Disconnect the connector DM27324 from the flap skew sensor M27324.
- (c) Disconnect the connector DM27332 from the flap skew sensor M27332.
- (d) Disconnect the connector DM27322 from the flap skew sensor M27322.
- (e) Disconnect the connector DM27330 from the flap skew sensor M27330.
- (f) Do a wiring check between these pins of connector DM27324 at the flap skew sensor, M27324 and connector DM27322 at the flap skew sensor, M27322 (WDM 27-59-13):

DM27324	DM27322
pin 2	pin 1
pin 4	pin 3

- (g) Do a wiring check between these pins of connector DM27332 at the flap skew sensor, M27332 and connector DM27330 at the flap skew sensor, M27330 (WDM 27-59-14):

EFFECTIVITY
ARO ALL

27-59 TASK 810

D633W103-ARO

Page 224
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27332

pin 2 pin 1
pin 4 pin 3

DM27330

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Reconnect connector DM27322.
- (j) Reconnect connector DM27330.
- (k) Reconnect connector DM27324.
- (l) Reconnect connector DM27332.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (19) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

811. Flap Supports No. 1 and No. 2 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20471.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 2 and transmission No. 3:

EFFECTIVITY
ARO ALL

27-59 TASKS 810-811

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details



777-200/300 FAULT ISOLATION MANUAL

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube or torque tube support:

- a) These are the tasks:

Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.

- b) These are the tasks:

Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 1, Test of Flaps Only.

- a) If the MAT EXISTING FAULTS display does not show LATCHED for the
maintenance message, then you corrected the fault.

- (c) If you do not see a broken or disconnected torque tube, then continue.

- (2) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (3) Use the primary system to extend or retract the flaps to another position. To extend or retract
them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM
TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN
CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get
FSEU 1 IN CONTROL.

EFFECTIVITY
ARO ALL

27-59 TASK 811

D633W103-ARO

Page 226
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

812. Flap Supports No. 1, No. 2 and No. 3 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20481.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 3 and transmission No. 4:
- (a) Remove these access panels to get access to the torque tubes
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 552AB | Inboard Fixed Trailing Edge Panel |
| 552CB | Inboard Fixed Trailing Edge Panel |
| 552EB | Inboard Fixed Trailing Edge Panel |
- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube or torque tube support:
 - a) These are the tasks:
 - Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802
 - Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802
 - b) These are the tasks:
 - Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801
 - Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (c) Install these access panels
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 552AB | Inboard Fixed Trailing Edge Panel |

EFFECTIVITY
ARO ALL

27-59 TASKS 811-812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 227
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- (d) If you do not see a broken or disconnected torque tube, then continue.
- (2) Replace FSEU 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (3) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE:** Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

813. Flap Supports No. 1, 2, 3 and 4 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20491.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube in the left wheel well, between transmission No. 4 and the flap power drive unit:



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-59 TASKS 812-813

D633W103-ARO

Page 228
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) If you see a broken or disconnected torque tube, do these steps:
 - 1) Replace the applicable torque tube.
These are the tasks:
Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (d) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
 - (e) If you do not see a broken or disconnected torque tube, then continue.
 - (2) Replace FSEU 1, M27001.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (3) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE:** Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

814. Flap Supports No. 5, 6, 7 and 8 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20581.

EFFECTIVITY
ARO ALL

27-59 TASKS 813-814

D633W103-ARO

Page 229
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube in the right wheel well, between transmission No. 5 and the flap power drive unit:



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
 - (c) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube.

These are the tasks:

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (d) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
 - (e) If you do not see a broken or disconnected torque tube, then continue.
 - (2) Replace FSEU 1, M27001.

EFFECTIVITY
ARO ALL

27-59 TASK 814

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 230
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (3) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

815. Flap Supports No. 6, No. 7 and No. 8 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20601.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 5 and transmission No. 6:
- (a) Remove these access panels to get access to the torque tubes
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 652AB | Inboard Fixed Trailing Edge Panel |
| 652CB | Inboard Fixed Trailing Edge Panel |
| 652EB | Inboard Fixed Trailing Edge Panel |
- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube or torque tube support:
- a) These are the tasks:
- Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.
- b) These are the tasks:
- Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.

EFFECTIVITY
ARO ALL

27-59 TASKS 814-815

D633W103-ARO

Page 231
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
- 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (c) Install these access panels

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

————— END OF TASK —————

816. Flap Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20641.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for broken or disconnected torque tubes for the flaps:

NOTE: It is likely there are multiple broken or disconnected torque tubes in the flap drive system.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) Look at the torque tubes in the main landing gear wheel wells to see if they are broken or disconnected.

EFFECTIVITY
ARO ALL

27-59 TASKS 815-816

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 232
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (d) Look at the torque tubes between flap support No. 1 and No. 2.
- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- (e) Look at the torque tubes between flap supports No. 2 and No. 3.
- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (f) Look at the torque tubes between flap supports No. 3 and No. 4.
- 1) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- (g) Look at the torque tubes between flap supports No. 5 and No. 6.
- 1) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

- (h) Look at the torque tubes between flap supports No. 6 and No. 7.
- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- (i) Look at the torque tubes between flap support No. 7 and No. 8.

EFFECTIVITY
ARO ALL

27-59 TASK 816

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 233
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- (j) If you see a broken or disconnected torque tube, replace the applicable torque tube, torque tube support or no-back brake:

- 1) These are the tasks:

Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.

- 2) These are the tasks:

Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.

- 3) These are the tasks:

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

- 4) These are the tasks:

Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-802.

- 5) These are the tasks:

Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.

- (k) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

- (l) Install the applicable access panels:

- 1) Install these access panels between flap supports No. 1 and No. 2:

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- 2) Install these access panels between flap supports No. 2 and 3:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 3) Install these access panels between flap supports No. 3 and No. 4:

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-59 TASK 816

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 234
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- 4) Install these access panels between flap supports No. 5 and No. 6:

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

- 5) Install these access panels between flap supports No. 6 and No. 7:

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- 6) Install these access panels between flap supports No. 7 and No. 8:

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- (m) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.

- 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (n) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

- (o) If you do not see a broken or disconnected torque tube, then continue.

- (2) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (3) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

EFFECTIVITY
ARO ALL

27-59 TASK 816

D633W103-ARO

Page 235
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

817. Flap Skew Sensors 1 and 8 Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25371.

B. Initial Evaluation

- (1) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only:
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the HIGH LIFT Eicas maintenance page to see which flap skew sensor indication does not agree with the other indications:
 - (a) Look at the indications OUTBD FLAP L1 A and R8 A to see which does not agree with L1 B and R8 B.
 - (b) If the indication OUTBD FLAP R8 A does not agree with the other indications, look for problems at flap support No. 8 on the right wing first.
 - (c) If the indication OUTBD FLAP L1 A does not agree with the other indications, look for problems at flap support No. 1 on the left wing first.
- (2) Replace the flap skew sensor R8 A, M27322 on flap support No. 8.
These are the tasks:
Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.
 - (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the flap skew sensor L1 A, M27323 on flap support No. 1.
These are the tasks:
Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.
 - (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-59 TASKS 816-817

D633W103-ARO

Page 236
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (5) Do a wiring check between FSEU 1, M27001 and flap skew sensor R8 A, M27322:
- (a) Disconnect the electrical connector DM27322 from the flap skew sensor R8 A, M27322.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27322 at the flap skew sensor R8 A, M27322 (WDM 27-59-13):

DM27001AA	DM27322
pin B11	pin 5
pin A11	pin 6

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27322.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between FSEU 1, M27001 and flap skew sensor L1 A, M27323.
 - (a) Disconnect electrical connector DM27323 from the flap skew sensor L1 A, M27323.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27323 at the flap skew sensor L1 A, M27323 (WDM 27-59-11):

DM27001AC	DM27323
pin J11	pin 5
pin K11	pin 6

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27323.

EFFECTIVITY
ARO ALL

27-59 TASK 817

D633W103-ARO

Page 237
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Re-connect connector DM27322.
- 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (7) Do a wiring check between flap skew sensor R8 A, M27322 and flap skew sensor R7 A, M27324:
 - (a) Disconnect the electrical connector DM27324 from the flap skew sensor R7 A, M27324.
 - (b) Do a wiring check between these pins of connector DM27324 at the flap skew sensor R7 A, M27324 and connector DM27322 at the flap skew sensor R8 A, M27322 (WDM 27-59-13):

DM27324		DM27322
pin 2	.....	pin 1
pin 4	.....	pin 3

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27322.
 - 4) Re-connect connector DM27323.
 - 5) Re-connect connector DM27324.
 - 6) Remove the safety tags and close these circuit breakers:
- ### Standby Power Management Panel, P310
<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
- 7) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (d) If you do not find a problem with the wiring, then continue.
 - (8) Re-connect connector DM27322.
 - (9) Re-connect connector DM27324.
 - (10) Do a wiring check between flap skew sensor L1 A, M27323 and flap skew sensor L2 A, M27325:
 - (a) Disconnect the electrical connector DM27325 from the flap skew sensor L2 A, M27325.

EFFECTIVITY
ARO ALL

27-59 TASK 817

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 238
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Do a wiring check between these pins of connector DM27325 at the flap skew sensor L2 A, M27325 and connector DM27323 at the flap skew sensor L1 A, M27323 (WDM 27-59-11):

DM27325	DM27323
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27325.
 - 4) Re-connect connector DM27323.
 - 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DM27323
- (13) Re-connect connector DM27325
- (14) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (15) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (16) Look for a broken or disconnected torque tube between transmission No. 1 and transmission No. 2:
 - (a) If the flap is retracted, remove these access panels to get access to the torque tubes

Number	Name/Location
561CB	Midspan Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-59 TASK 817

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 239
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

(b) If you see a broken or disconnected torque tube, do these steps:

1) Replace the applicable torque tube, torque tube support or no-back brake:

a) These are the tasks:

Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.

b) These are the tasks:

Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.

2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.

3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 1, Test of Flaps Only.

a) If the maintenance message does not show on the ground test display, then
you corrected the fault.

(c) If you do not see a broken torque tube, then continue.

(17) For flap support No. 1, do this task: Outboard Flap Support Fairing Removal, AMM
TASK 27-51-28-000-801.

(18) Visually examine these components on flap support No. 1 and replace those that have
damage:

(a) Ballscrew and gimbal.

These are the tasks:

Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801,
Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-26-400-801.

(b) Transmission and yoke.

These are the tasks:

Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802,
Outboard Flap Outboard Transmission Installation, AMM TASK 27-51-25-400-802.

(c) Flap support mechanism.

These are the tasks:

Outboard Flap Outboard Support Mechanism Removal, AMM TASK 27-51-22-000-801,

EFFECTIVITY
ARO ALL

27-59 TASK 817

D633W103-ARO

Page 240
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Outboard Flap Outboard Support Mechanism - Installation, AMM
TASK 27-51-22-400-801.

- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you did not replace a component, then continue.
- (19) Look for a broken or disconnected torque tube between transmission No. 7 and transmission No. 8:
- (a) If the flap is retracted, remove these access panels to get access to the torque tubes
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 661CB | Midspan Fixed Trailing Edge Panel |
| 661DB | Midspan Fixed Trailing Edge Panel |
| 661EB | Midspan Fixed Trailing Edge Panel |
- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube, torque tube support or no-back brake:
 - a) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
 - b) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.
 - 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel
 - 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not see a broken torque tube, then continue.
- (20) For flap support No. 8, do this task: Outboard Flap Support Fairing Removal, AMM
TASK 27-51-28-000-801.
- (21) Visually examine these components on flap support No. 8 and replace those that have damage:
- (a) Ballscrew and gimbal.
- These are the tasks:
- Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801,

EFFECTIVITY
ARO ALL

27-59 TASK 817

D633W103-ARO

Page 241
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-801.

- (b) Transmission and yoke.

These are the tasks:

Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802,

Outboard Flap Outboard Transmission Installation, AMM TASK 27-51-25-400-802.

- (c) Flap support mechanism.

These are the tasks:

Outboard Flap Outboard Support Mechanism Removal, AMM TASK 27-51-22-000-801,

Outboard Flap Outboard Support Mechanism - Installation, AMM

TASK 27-51-22-400-801.

- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (22) For flap supports No. 1 and No. 8, do this task: Outboard Flap Support Fairing Installation, AMM TASK 27-51-28-400-801.

————— **END OF TASK** —————

818. Flap Skew Sensors 2 and 7 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20661.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor R7 A, M27324 on the number 7 flap support mechanism.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

- (b) If the MAT shows ACTIVE for the maintenance message, then continue.

- (2) Replace the flap skew sensor L2 A, M27325 on the number 2 flap support mechanism.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

- (b) If the MAT shows ACTIVE for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-59 TASKS 817-818

D633W103-ARO

Page 242
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (4) Do a wiring check between FSEU 1, M27001 and flap skew sensor R7 A, M27324:
- (a) Disconnect the electrical connector DM27324 from the flap skew sensor R7 A, M27324.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27324 at the flap skew sensor R7 A, M27324 (WDM 27-59-13):

DM27001AA	DM27324
pin E11	pin 5
pin D11	pin 6

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27324.
 - (e) If you do not find a problem with the wiring, then continue.
- (5) Do a wiring check between FSEU 1, M27001 and flap skew sensor L2 A, M27325.
- (a) Disconnect electrical connector DM27325 from the flap skew sensor L2 A, M27325.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27325 at the flap skew sensor L2 A, M27325 (WDM 27-59-11):

DM27001AC	DM27325
pin F11	pin 5
pin G11	pin 6

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27325.
 - (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between flap skew sensor R7 A, M27324 and flap skew sensor R6 A, M27326:
- (a) Disconnect the electrical connector DM27326 from the flap skew sensor R6 A, M27326.
 - (b) Do a wiring check between these pins of connector DM27326 at the flap skew sensor R6 A, M27326 and connector DM27324 at the flap skew sensor R7 A, M27324 (WDM 27-59-13):



777-200/300 FAULT ISOLATION MANUAL

DM27326

pin 2 pin 1
pin 4 pin 3

DM27324

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27326.
 - 4) Re-connect connector DM27324
- (d) If you do not find a problem with the wiring, then continue.
- (7) Do a wiring check between flap skew sensor L2 A, M27325 and flap skew sensor L3 A, M27327:
- (a) Disconnect the electrical connector DM27327 from the flap skew sensor R3 A, M27327.
- (b) Do a wiring check between these pins of connector DM27327 at the flap skew sensor L3 A, M27327 and connector DM27325 at the flap skew sensor L2 A, M27325 (WDM 27-59-11):

DM27327

pin 2 pin 1
pin 4 pin 3

DM27325

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27325.
 - 4) Re-connect connector DM27327.
- (d) If you do not find a problem with the wiring, then continue.
- (8) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (9) Re-connect connector DM27324.
- (10) Re-connect connector DM27325.
- (11) Re-connect connector DM27326.
- (12) Re-connect connector DM27327.
- (13) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-59 TASK 818

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 244
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (14) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

819. Flap Skew Sensors 3 and 6 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20671.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor R6 A, M27326 on the number 6 flap support mechanism.

These are the tasks:

Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,

Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the flap skew sensor L3 A, M27327 on the number 3 flap support mechanism.
- These are the tasks:
- Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,
- Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (4) Do a wiring check between FSEU 1, M27001 and flap skew sensor R6 A, M27326:
- (a) Disconnect the electrical connector DM27326 from the flap skew sensor R6 A, M27326.
- (b) Remove FSEU 1, M27001 from the E1-6 shelf.

EFFECTIVITY
ARO ALL

27-59 TASKS 818-819

D633W103-ARO

Page 245
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (c) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27326 at the flap skew sensor R6 A, M27326 (WDM 27-59-13):

DM27001AA	DM27326
pin H11	pin 5
pin G11	pin 6

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27326.
- (e) If you do not find a problem with the wiring, then continue.
- (5) Do a wiring check between FSEU 1, M27001 and flap skew sensor L3 A, M27327.
- (a) Disconnect electrical connector DM27325 from the flap skew sensor L3 A, M27327.
- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27327 at the flap skew sensor L3 A, M27326 (WDM 27-59-11):

DM27001AC	DM27327
pin C11	pin 5
pin D11	pin 6

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27327.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between flap skew sensor R6 A, M27326 and flap skew sensor R5 A, M27328:
- (a) Disconnect the electrical connector DM27328 from the flap skew sensor R5 A, M27328.
- (b) Do a wiring check between these pins of connector DM27328 at the flap skew sensor R5 A, M27328 and connector DM27326 at the flap skew sensor R6 A, M27326 (WDM 27-59-13):

DM27328	DM27326
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27328.
 - 4) Re-connect connector DM27326
- (d) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-59 TASK 819

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 246
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (7) Do a wiring check between flap skew sensor L3 A, M27327 and flap skew sensor L4 A, M27329:
- (a) Disconnect the electrical connector DM27329 from the flap skew sensor R4 A, M27329.
 - (b) Do a wiring check between these pins of connector DM27329 at the flap skew sensor L4 A, M27329 and connector DM27327 at the flap skew sensor L3 A, M27327 (WDM 27-59-11):

DM27329	DM27327
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27327.
 - 4) Re-connect connector DM27329.
- (d) If you do not find a problem with the wiring, then continue.
- (8) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (9) Re-connect connector DM27326.
- (10) Re-connect connector DM27327.
- (11) Re-connect connector DM27328.
- (12) Re-connect connector DM27329.
- (13) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (14) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

820. Flap Skew Sensors 4 and 5 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20681.

EFFECTIVITY
ARO ALL

27-59 TASKS 819-820

D633W103-ARO

Page 247
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor R5 A, M27328 on the number 5 flap support mechanism.

These are the tasks:

Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,

Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the flap skew sensor L4 A, M27329 on the number 4 flap support mechanism.

These are the tasks:

Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,

Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (a) Disconnect the electrical connector DM27328 from the flap skew sensor R5 A, M27328.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27328 at the flap skew sensor R5 A, M27328 (WDM 27-58-11) and (WDM 27-59-13):

DM27001AA	DM27328
pin K10	pin 5
pin K11	pin 6
pin A3	pin 1
pin B3	pin 3

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27328.

EFFECTIVITY
ARO ALL

27-59 TASK 820

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 248
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (e) If you do not find a problem with the wiring, then continue.
- (5) Do a wiring check between FSEU 1, M27001 and flap skew sensor L4 A, M27329.
- (a) Disconnect electrical connector DM27329 from the flap skew sensor L4 A, M27329.
- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27329 at the flap skew sensor L4 A, M27329 (WDM 27-58-11) and (WDM 27-59-11):

DM27001AC	DM27329
pin A10	pin 5
pin A11	pin 6
pin J3	pin 3
pin K3	pin 1

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27329.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (7) Re-connect connector DM27328.
- (8) Re-connect connector DM27329.
- (9) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (10) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

821. Flap Supports No. 1 and No. 8 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20501.

EFFECTIVITY
ARO ALL

27-59 TASKS 820-821

D633W103-ARO

Page 249
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 1 and transmission No. 2:
 - (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel
 - (b) If you see a broken or disconnected torque tube, do these steps:
 - 1) Replace the applicable torque tube, torque tube support or no-back brake:
 - a) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
 - b) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-802.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel
 - 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (c) If you do not see a broken or disconnected torque tube, then continue.
- (2) For flap support No. 1, do this task: Outboard Flap Support Fairing Removal, AMM TASK 27-51-28-000-801.
- (3) Visually examine these components on flap support No. 1 and replace those that have damage:

EFFECTIVITY
ARO ALL

27-59 TASK 821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 250
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Ballscrew and gimbal.
These are the tasks:
Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801,
Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-26-400-801.
- (b) Transmission and yoke.
These are the tasks:
Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802,
Outboard Flap Outboard Transmission Installation, AMM TASK 27-51-25-400-802.
- (c) Flap support mechanism.
These are the tasks:
Outboard Flap Outboard Support Mechanism Removal, AMM TASK 27-51-22-000-801,
Outboard Flap Outboard Support Mechanism - Installation, AMM
TASK 27-51-22-400-801.
- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System,
System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- 1) If the MAT EXISTING FAULTS display does not show LATCHED for the
maintenance message, then you corrected the fault.
- (e) If you did not replace a component, then continue.
- (4) Look for a broken or disconnected torque tube between transmission No. 7 and transmission
No. 8:
- (a) If the flap is retracted, remove these access panels to get access to the torque tubes
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 661CB | Midspan Fixed Trailing Edge Panel |
| 661DB | Midspan Fixed Trailing Edge Panel |
| 661EB | Midspan Fixed Trailing Edge Panel |
- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube, torque tube support or no-back brake:
- a) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
- b) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.
- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.
- 3) Install these access panels if you removed them,
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 661CB | Midspan Fixed Trailing Edge Panel |
| 661DB | Midspan Fixed Trailing Edge Panel |

EFFECTIVITY
ARO ALL

27-59 TASK 821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 251
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
661EB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (c) If you do not see a broken torque tube, then continue.
- (5) For flap support No. 8, do this task: Outboard Flap Support Fairing Removal, AMM TASK 27-51-28-000-801.
- (6) Visually examine these components on flap support No. 8 and replace those that have damage:
 - (a) Ballscrew and gimbal.

These are the tasks:
Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801,
Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-801.
 - (b) Transmission and yoke.

These are the tasks:
Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802,
Outboard Flap Outboard Transmission Installation, AMM TASK 27-51-25-400-802.
 - (c) Flap support mechanism.

These are the tasks:
Outboard Flap Outboard Support Mechanism Removal, AMM TASK 27-51-22-000-801,
Outboard Flap Outboard Support Mechanism - Installation, AMM TASK 27-51-22-400-801.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (7) For flap supports No. 1 and No. 8, do this task: Outboard Flap Support Fairing Installation, AMM TASK 27-51-28-400-801.
- (8) Replace FSEU 1, M27001.

These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (9) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

EFFECTIVITY
ARO ALL

27-59 TASK 821

D633W103-ARO

Page 252
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

822. Flap Support No. 2 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20511.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) For flap support No. 2, do this task: Outboard Flap Support Fairing Removal, AMM TASK 27-51-28-000-801.
- (2) Visually examine these components on flap support No. 2 and replace those that have damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-802,
Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-802.
- (b) Transmission and yoke.
These are the tasks:
Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801,
Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801.
- (c) Flap support mechanism.
These are the tasks:
Outboard Flap Inboard Support Mechanism Removal, AMM TASK 27-51-22-000-802,
Outboard Flap Inboard Support Mechanism - Installation, AMM TASK 27-51-22-400-802.
- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (3) Replace the two flap skew sensors M27325 and M27333 at flap support No. 2.
These are the tasks:
Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

EFFECTIVITY
ARO ALL

27-59 TASKS 821-822

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 253
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (4) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 2
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27325 from the flap skew sensor M27325.
- (e) Disconnect the connector DM27333 from the flap skew sensor M27333.
- (f) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27325 at the flap skew sensor, M27325 (WDM 27-59-11):

DM27001AC	DM27325
pin F11	pin 5
pin G11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27333 at the flap skew sensor, M27333 (WDM 27-59-12):

DM27002AC	DM27333
pin F11	pin 5
pin G11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27325.
- (l) Reconnect connector DM27333.

EFFECTIVITY
ARO ALL

27-59 TASK 822

D633W103-ARO

Page 254
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (7) For flap support No. 2, do this task: Outboard Flap Support Fairing Installation, AMM TASK 27-51-28-400-801.
- (8) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (9) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

823. Flap Supports No. 2 and No. 7 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20521.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-59 TASKS 822-823

D633W103-ARO

Page 255
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 2 and transmission No. 3:

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube or torque tube support:

- a) These are the tasks:

- Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
 - Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.

- b) These are the tasks:

- Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
 - Outboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-802.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.

- a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

- (2) Look for a broken or disconnected torque tube between transmission No. 6 and transmission No. 7:

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-59 TASK 823

D633W103-ARO

Page 256
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

(b) If you see a broken or disconnected torque tube, do these steps:

1) Replace the applicable torque tube or torque tube support:

a) These are the tasks:

Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.

b) These are the tasks:

Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.

2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.

3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 1, Test of Flaps Only.

a) If the MAT EXISTING FAULTS display does not show LATCHED for the
maintenance message, then you corrected the fault.

(c) If you do not see a broken or disconnected torque tube, then continue.

(3) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

(4) Use the primary system to extend or retract the flaps to another position. To extend or retract
them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM
TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN
CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get
FSEU 1 IN CONTROL.

(a) If the MAT does not show LATCHED for the maintenance message, then you corrected
the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-59 TASK 823

D633W103-ARO

Page 257
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

824. Flap Support No. 3 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20531.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) For flap support No. 3, do this task: Outboard Flap Support Aft Fairing Removal, AMM TASK 27-51-18-000-802.
- (2) Visually examine these components on flap support No. 3 and replace those that have damage:
 - (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-802,
Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-802.
 - (b) Transmission and yoke.
These are the tasks:
Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802,
Inboard Flap Outboard Transmission Installation, AMM TASK 27-51-15-400-802.
 - (c) Flap support mechanism.
These are the tasks:
Pivot Link, Fairing Links and Spring Removal, AMM TASK 27-51-14-020-801,
Drive Arm Removal, AMM TASK 27-51-14-020-805.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (3) Replace the two flap skew sensors M27327 and M27335 at flap support No. 3.
These are the tasks:
Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,
Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.
- (4) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-59 TASK 824

D633W103-ARO

Page 258
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 3
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27327 from the flap skew sensor M27327.
- (e) Disconnect the connector DM27335 from the flap skew sensor M27335.
- (f) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27327 at the flap skew sensor, M27327 (WDM 27-59-11):

DM27001AC	DM27327
pin C11	pin 5
pin D11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27335 at the flap skew sensor, M27335 (WDM 27-59-12):

DM27002AC	DM27335
pin C11	pin 5
pin D11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27327.
- (l) Reconnect connector DM27335.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-59 TASK 824

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 259
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (7) For flap support No. 3, do this task: Outboard Flap Support Aft Fairing Installation, AMM TASK 27-51-18-400-802.
- (8) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (9) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

825. Flap Supports No. 3 and No. 6 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20541.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-59 TASKS 824-825

D633W103-ARO

Page 260
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 3 and transmission No. 4:

- (a) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube or torque tube support:

- a) These are the tasks:

Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.

- b) These are the tasks:

Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

- 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.

- a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

- (c) Install these access panels

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- (d) If you do not see a broken or disconnected torque tube, then continue.

- (2) Look for a broken or disconnected torque tube between transmission No. 5 and transmission No. 6:

- (a) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube or torque tube support:

- a) These are the tasks:

Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.

- b) These are the tasks:

EFFECTIVITY
ARO ALL

27-59 TASK 825

D633W103-ARO

Page 261
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
- 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

- (c) Install these access panels

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

- (d) If you do not see a broken or disconnected torque tube, then continue.

- (3) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (4) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

826. Flap Support No. 4 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20551.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-59 TASKS 825-826

D633W103-ARO

Page 262
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Visually examine these components on flap support No. 4 and replace those that have damage:
 - (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-801,
Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-801.
 - (b) Transmission and yoke.
These are the tasks:
Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801,
Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801.
 - (c) Flap support mechanism.
These are the tasks:
Bellcrank and Drive Links Removal, AMM TASK 27-51-13-000-801,
Bellcrank and Drive Links Installation, AMM TASK 27-51-13-400-804.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (4) Replace the two flap skew sensors M27329 and M27337 at flap support No. 4.
These are the tasks:
Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,
Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.
- (5) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-59 TASK 826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 263
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (6) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 4

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
(c) Remove FSEU 2, M27002 from the E4-1 shelf.
(d) Disconnect the connector DM27329 from the flap skew sensor M27329.
(e) Disconnect the connector DM27335 from the flap skew sensor M27335.
(f) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27329 at the flap skew sensor, M27329 (WDM 27-59-11):

DM27001AC	DM27329
pin A10	pin 5
pin A11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27337 at the flap skew sensor, M27337 (WDM 27-59-12):

DM27002AC	DM27337
pin A10	pin 5
pin A11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
(i) Re-install FSEU 1, M27001.
(j) Re-install FSEU 2, M27002.
(k) Reconnect connector DM27329.
(l) Reconnect connector DM27337.
(m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-59 TASK 826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 264
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (7) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (8) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

- (9) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (10) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

END OF TASK

827. Flap Supports No. 4 and No. 5 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20561.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-59 TASKS 826-827

D633W103-ARO

Page 265
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Look for a broken or disconnected torque tube in the left wheel well, between transmission No. 4 and the flap power drive unit:
- (a) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube.
These are the tasks:
Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If you do not see a broken or disconnected torque tube, then continue.
- (4) Look for a broken or disconnected torque tube in the right wheel well, between transmission No. 5 and the flap power drive unit:
- (a) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube.
These are the tasks:
Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If you do not see a broken or disconnected torque tube, then continue.

EFFECTIVITY
ARO ALL

27-59 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 266
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (6) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (7) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

828. Flap Support No. 5 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20571.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-59 TASKS 827-828

D633W103-ARO

Page 267
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Visually examine these components on flap support No. 5 and replace those that have damage:
 - (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-801,
Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-801.
 - (b) Transmission and yoke.
These are the tasks:
Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801,
Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801.
 - (c) Flap support mechanism.
These are the tasks:
Bellcrank and Drive Links Removal, AMM TASK 27-51-13-000-801,
Bellcrank and Drive Links Installation, AMM TASK 27-51-13-400-804.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (4) Replace the two flap skew sensors M27322 and M27330 at flap support No. 5.
These are the tasks:
Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,
Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.
- (5) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (6) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 5:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-59 TASK 828

D633W103-ARO

Page 268
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27328 from the flap skew sensor M27328.
- (e) Disconnect the connector DM27336 from the flap skew sensor M27336.
- (f) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27328 at the flap skew sensor, M27328 (WDM 27-59-13):

DM27001AA	DM27328
pin K10	pin 5
pin K11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27336 at the flap skew sensor, M27336 (WDM 27-59-14):

DM27002AA	DM27336
pin K10	pin 5
pin K11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27328.
- (l) Reconnect connector DM27336.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (7) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (8) Replace FSEU 1, M27001.

EFFECTIVITY
ARO ALL

27-59 TASK 828

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 269
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (9) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

829. Flap Support No. 6 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20591.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) For flap support No. 6, do this task: Outboard Flap Support Aft Fairing Removal, AMM TASK 27-51-18-000-802.
- (2) Visually examine these components on flap support No. 6 and replace those that have damage:
- (a) Ballscrew and gimbal.
- These are the tasks:
- Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-802,
Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-802.
- (b) Transmission and yoke.
- These are the tasks:
- Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802,
Inboard Flap Outboard Transmission Installation, AMM TASK 27-51-15-400-802.
- (c) Flap support mechanism.
- These are the tasks:
- Pivot Link, Fairing Links and Spring Removal, AMM TASK 27-51-14-020-801,
Drive Arm Removal, AMM TASK 27-51-14-020-805.

EFFECTIVITY
ARO ALL

27-59 TASKS 828-829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 270
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (3) Replace the two flap skew sensors M27326 and M27334 at flap support No. 6.
- These are the tasks:
- Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,
Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.
- (4) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 6:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27326 from the flap skew sensor M27326.
- (e) Disconnect the connector DM27334 from the flap skew sensor M27334.
- (f) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27326 at the flap skew sensor, M27325 (WDM 27-59-13):

DM27001AA	DM27326
pin H11	pin 5
pin G11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27334 at the flap skew sensor, M27334 (WDM 27-59-14):

DM27002AA	DM27330
pin B11	pin 5
pin A11	pin 6

EFFECTIVITY
ARO ALL

27-59 TASK 829

D633W103-ARO

Page 271
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27326.
- (l) Reconnect connector DM27334.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) For flap support No. 6, do this task: Outboard Flap Support Aft Fairing Installation, AMM TASK 27-51-18-400-802.
- (7) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (8) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

830. Flap Support No. 7 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20611.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-59 TASKS 829-830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 272
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) For flap support No. 7, do this task: Outboard Flap Support Fairing Removal, AMM TASK 27-51-28-000-801.
- (2) Visually examine these components on flap support No. 7 and replace those that have damage:
 - (a) Ballscrew and gimbal.
These are the tasks:
Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-802,
Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-802.
 - (b) Transmission and yoke.
These are the tasks:
Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801,
Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801.
 - (c) Flap support mechanism.
These are the tasks:
Outboard Flap Inboard Support Mechanism Removal, AMM TASK 27-51-22-000-802,
Outboard Flap Inboard Support Mechanism - Installation, AMM TASK 27-51-22-400-802.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (3) Replace the two flap skew sensors M27324 and M27332 at flap support No. 7.
These are the tasks:
Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.
- (4) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 7:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-59 TASK 830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 273
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27324 from the flap skew sensor M27324.
- (e) Disconnect the connector DM27332 from the flap skew sensor M27332.
- (f) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27324 at the flap skew sensor, M27324 (WDM 27-59-13):

DM27001AA	DM27324
pin E11	pin 5
pin D11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27332 at the flap skew sensor, M27332 (WDM 27-59-14):

DM27002AA	DM27332
pin E11	pin 5
pin D11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27324.
- (l) Reconnect connector DM27332.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) For flap support No. 7, do this task: Outboard Flap Support Fairing Installation, AMM TASK 27-51-28-400-801.
- (7) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-59 TASK 830

D633W103-ARO

Page 274
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (8) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

831. Flap Supports No. 7 and No. 8 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20621.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 6 and transmission No. 7:

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube or torque tube support:
- a) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
- b) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-802.
- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

EFFECTIVITY
ARO ALL

27-59 TASKS 830-831

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 275
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.

- a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

- (c) If you do not see a broken or disconnected torque tube, then continue.

- (2) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (3) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

832. Flap Support No. 8 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20631.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 7 and transmission No. 8:

EFFECTIVITY
ARO ALL

27-59 TASKS 831-832

D633W103-ARO

Page 276
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube, torque tube support or no-back brake:
 - a) These are the tasks:
 - Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801
 - Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801
 - b) These are the tasks:
 - Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802
 - Outboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-802

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.

- a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

- (c) If you do not see a broken torque tube, then continue.

- (2) For flap support No. 8, do this task: Outboard Flap Support Fairing Removal, AMM TASK 27-51-28-000-801.

- (3) Visually examine these components and replace those that have damage:

- (a) Ballscrew and gimbal. These are the tasks:
 - Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801
 - Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-801
- (b) Transmission and yoke. These are the tasks:
 - Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802
 - Outboard Flap Outboard Transmission Installation, AMM TASK 27-51-25-400-802
- (c) Flap support mechanism. These are the tasks:
 - Outboard Flap Outboard Support Mechanism Removal, AMM TASK 27-51-22-000-801
 - Outboard Flap Outboard Support Mechanism - Installation, AMM TASK 27-51-22-400-801

EFFECTIVITY
ARO ALL

27-59 TASK 832

D633W103-ARO

Page 277
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) For flap support No. 8, do this task: Outboard Flap Support Fairing Installation, AMM TASK 27-51-28-400-801.
- (6) Replace FSEU 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (7) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE:** Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (8) Replace the two flap skew sensors M27322 and M27330 at flap support No. 8. These are the tasks:
- Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002
 - Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002
- (9) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (10) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 8
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.

EFFECTIVITY
ARO ALL

27-59 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 278
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27322 from the flap skew sensor M27322.
- (e) Disconnect the connector DM27330 from the flap skew sensor M27330.
- (f) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27322 at the flap skew sensor, M27322 (WDM 27-59-13):

DM27001AA	DM27322
pin B11	pin 5
pin A11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27330 at the flap skew sensor, M27330 (WDM 27-59-14):

DM27002AA	DM27330
pin B11	pin 5
pin A11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27322.
- (l) Reconnect connector DM27330.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (11) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (12) Do this check of the wiring between the flap skew sensors on the flap supports No. 7 and No. 8:

EFFECTIVITY
ARO ALL

27-59 TASK 832

D633W103-ARO

Page 279
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (b) Disconnect the connector DM27324 from the flap skew sensor M27324.
(c) Disconnect the connector DM27332 from the flap skew sensor M27332.
(d) Disconnect the connector DM27322 from the flap skew sensor M27322.
(e) Disconnect the connector DM27330 from the flap skew sensor M27330.
(f) Do a wiring check between these pins of connector DM27324 at the flap skew sensor, M27324 and connector DM27322 at the flap skew sensor, M27322 (WDM 27-59-13):

DM27324	DM27322
pin 2	pin 1
pin 4	pin 3

- (g) Do a wiring check between these pins of connector DM27332 at the flap skew sensor, M27332 and connector DM27330 at the flap skew sensor, M27330 (WDM 27-59-14):

DM27332	DM27330
pin 2	pin 1
pin 4	pin 3

- (h) If you find a problem with the wiring, repair the wiring.
(i) Reconnect connector DM27322.
(j) Reconnect connector DM27330.
(k) Reconnect connector DM27324.
(l) Reconnect connector DM27332.
(m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (13) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

EFFECTIVITY
ARO ALL

27-59 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 280
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (14) Replace the two flap skew sensors M27323 and M27331 at flap support No. 1. These are the tasks:
- Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002
 - Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002
- (15) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (16) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 1:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27323 from the flap skew sensor M27323.
- (e) Disconnect the connector DM27331 from the flap skew sensor M27331.
- (f) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27323 at the flap skew sensor, M27323 (WDM 27-59-11):

DM27001AC	DM27323
pin J11	pin 5
pin K11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27331 at the flap skew sensor, M27331 (WDM 27-59-14):

DM27002AC	DM27331
pin J11	pin 5
pin K11	pin 6

EFFECTIVITY
ARO ALL

27-59 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 281
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27323.
- (l) Reconnect connector DM27331.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (17) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (18) Do this check of the wiring between the flap skew sensors on the flap supports No. 1 and No. 2:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (b) Disconnect the connector DM27323 from the flap skew sensor M27323.
 - (c) Disconnect the connector DM27331 from the flap skew sensor M27331.
 - (d) Disconnect the connector DM27325 from the flap skew sensor M27325.
 - (e) Disconnect the connector DM27333 from the flap skew sensor M27333.
 - (f) Do a wiring check between these pins of connector DM27325 at the flap skew sensor, M27325 and connector DM27323 at the flap skew sensor, M27323 (WDM 27-59-11):

EFFECTIVITY
ARO ALL

27-59 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 282
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27325

pin 2 pin 1
pin 4 pin 3

DM27323

- (g) Do a wiring check between these pins of connector DM27333 at the flap skew sensor, M27333 and connector DM27331 at the flap skew sensor, M27331 (WDM 27-59-12):

DM27333

pin 2 pin 1
pin 4 pin 3

DM27331

- (h) If you find a problem with the wiring, repair the wiring.
(i) Reconnect connector DM27325.
(j) Reconnect connector DM27333.
(k) Reconnect connector DM27323.
(l) Reconnect connector DM27331.
(m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (19) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

833. Flap Skew Sensors 2 and 7 Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25381.

B. Initial Evaluation

- (1) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only:
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-59 TASKS 832-833

D633W103-ARO

Page 283
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Look at the HIGH LIFT EICAS maintenance page to see which flap skew sensor indication does not agree with the other indications:
 - (a) Look at the indications OUTBD FLAP L2 A and R7 A to see which does not agree with L2 B and R7 B.
 - (b) If the indication OUTBD FLAP R7 A does not agree with the other indications, look for problems at flap support No. 7 on the right wing first.
 - (c) If the indication OUTBD FLAP L2 A does not agree with the other indications, look for problems at flap support No. 2 on the left wing first.
- (2) Replace the flap skew sensor R7 A, M27324 on flap support No. 7.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the flap skew sensor L2 A, M27325 on flap support No. 2.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (5) Do a wiring check between FSEU 1, M27001 and flap skew sensor R7 A, M27324:
 - (a) Disconnect the electrical connector DM27324 from the flap skew sensor R7 A, M27324.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27324 at the flap skew sensor R7 A, M27324 (WDM 27-59-13):

DM27001AA	DM27324
pin E11	pin 5
pin D11	pin 6

- (d) If you find a problem with the wiring, do these steps:

EFFECTIVITY
ARO ALL

27-59 TASK 833

D633W103-ARO

Page 284
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-install FSEU 1, M27001.
- 3) Re-connect connector DM27324.
- 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between FSEU 1, M27001 and flap skew sensor L2 A, M27325.
 - (a) Disconnect electrical connector DM27323 from the flap skew sensor L2 A, M27325.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27325 at the flap skew sensor L2 A, M27325 (WDM 27-59-11):

DM27001AC	DM27325
pin F11	pin 5
pin G11	pin 6

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27325.
 - 4) Re-connect connector DM27324.
 - 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (7) Do a wiring check between flap skew sensor R7 A, M27324 and flap skew sensor R6 A, M27326:
 - (a) Disconnect the electrical connector DM27326 from the flap skew sensor R6 A, M27326.

EFFECTIVITY
ARO ALL

27-59 TASK 833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 285
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (b) Do a wiring check between these pins of connector DM27326 at the flap skew sensor R6 A, M27326 and connector DM27324 at the flap skew sensor R7 A, M27324 (WDM 27-59-13):

DM27326	DM27324
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27326.
 - 4) Re-connect connector DM27325.
 - 5) Re-connect connector DM27324.
 - 6) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 7) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (8) Re-connect connector DM27324.
- (9) Re-connect connector DM27326.
- (10) Do a wiring check between flap skew sensor L2 A, M27325 and flap skew sensor L3 A, M27327:
 - (a) Disconnect the electrical connector DM27327 from the flap skew sensor L3 A, M27327.
 - (b) Do a wiring check between these pins of connector DM27327 at the flap skew sensor L3 A, M27327 and connector DM27325 at the flap skew sensor L2 A, M27325 (WDM 27-59-11):

DM27327	DM27325
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27327.
 - 4) Re-connect connector DM27325.

EFFECTIVITY
ARO ALL

27-59 TASK 833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 286
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DM27325
- (13) Re-connect connector DM27327
- (14) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (15) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (16) Look for a broken or disconnected torque tube between transmission No. 2 and transmission No. 3:
- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube or torque tube support:
- a) These are the tasks:
- Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
- b) These are the tasks:
- Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,

EFFECTIVITY
ARO ALL

27-59 TASK 833

D633W103-ARO

Page 287
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 1, Test of Flaps Only.

- a) If the maintenance message does not show on the ground test display, then
you corrected the fault.

- (c) If you do not see a broken torque tube, then continue.

- (17) For flap support No. 2, do this task: Outboard Flap Support Fairing Removal, AMM
TASK 27-51-28-000-801.

- (18) Visually examine these components on flap support No. 2 and replace those that have
damage:

- (a) Ballscrew and gimbal.

These are the tasks:

Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-802,

Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-802.

- (b) Transmission and yoke.

These are the tasks:

Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801,

Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801.

- (c) Flap support mechanism.

These are the tasks:

Outboard Flap Inboard Support Mechanism Removal, AMM TASK 27-51-22-000-802,

Outboard Flap Inboard Support Mechanism - Installation, AMM TASK 27-51-22-400-802.

- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System,
System Test, Primary System Test-FSEU 1, Test of Flaps Only.

- 1) If the maintenance message does not show on the ground test display, then you
corrected the fault.

- (e) If you did not replace a component, then continue.

- (19) Look for a broken or disconnected torque tube between transmission No. 6 and transmission
No. 7:

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-59 TASK 833

D633W103-ARO

Page 288
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

(b) If you see a broken or disconnected torque tube, do these steps:

1) Replace the applicable torque tube or torque tube support:

a) These are the tasks:

Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.

b) These are the tasks:

Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.

2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.

3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 1, Test of Flaps Only.

a) If the maintenance message does not show on the ground test display, then
you corrected the fault.

(c) If you do not see a broken torque tube, then continue.

(20) For flap support No. 7, do this task: Outboard Flap Support Fairing Removal, AMM
TASK 27-51-28-000-801.

(21) Visually examine these components on flap support No. 7 and replace those that have
damage:

(a) Ballscrew and gimbal.

These are the tasks:

Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-802,
Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-802.

(b) Transmission and yoke.

These are the tasks:

Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801,
Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801.

EFFECTIVITY
ARO ALL

27-59 TASK 833

D633W103-ARO

Page 289
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Flap support mechanism.
These are the tasks:
Outboard Flap Inboard Support Mechanism Removal, AMM TASK 27-51-22-000-802,
Outboard Flap Inboard Support Mechanism - Installation, AMM TASK 27-51-22-400-802.
- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (22) For flap supports No. 2 and No. 7, do this task: Outboard Flap Support Fairing Installation, AMM TASK 27-51-28-400-801.

— END OF TASK —

834. Flap Skew Sensors 3 and 6 Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25391.

B. Initial Evaluation

- (1) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only:
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the HIGH LIFT Eicas maintenance page to see which flap skew sensor indication does not agree with the other indications:
 - (a) Look at the indications OUTBD FLAP L3 A and R6 A to see which is does not agree with L3 B and R6 B.
 - (b) If the indication OUTBD FLAP R6 A does not agree with the other indications, look for problems at flap support No. 6 on the right wing first.
 - (c) If the indication OUTBD FLAP L3 A does not agree with the other indications, look for problems at flap support No. 3 on the left wing first.
- (2) Replace the flap skew sensor R6 A, M27326 on flap support No. 6.
These are the tasks:
Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,
Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.
 - (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the flap skew sensor L3 A, M27327 on flap support No. 3.

These are the tasks:

Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,

EFFECTIVITY
ARO ALL

27-59 TASKS 833-834

D633W103-ARO

Page 290
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.

- (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (5) Do a wiring check between FSEU 1, M27001 and flap skew sensor R6 A, M27326:
 - (a) Disconnect the electrical connector DM27326 from the flap skew sensor R6 A, M27326.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27326 at the flap skew sensor R6 A, M27326 (WDM 27-59-13):

DM27001AA	DM27326
pin H11	pin 5
pin G11	pin 6

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27326.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between FSEU 1, M27001 and flap skew sensor L3 A, M27327.
 - (a) Disconnect electrical connector DM27327 from the flap skew sensor L3 A, M27327.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27327 at the flap skew sensor L3 A, M27327 (WDM 27-59-11):

EFFECTIVITY
ARO ALL

27-59 TASK 834

D633W103-ARO

Page 291
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

DM27001AC

pin C11 pin 5
pin D11 pin 6

DM27327

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27327.
 - 4) Re-connect connector DM27326.
 - 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (7) Do a wiring check between flap skew sensor R5 A, M27328 and flap skew sensor R6 A, M27326:
 - (a) Disconnect the electrical connector DM27328 from the flap skew sensor R5 A, M27328.
 - (b) Do a wiring check between these pins of connector DM27328 at the flap skew sensor R5 A, M27328 and connector DM27326 at the flap skew sensor R6 A, M27326 (WDM 27-59-13):

DM27328

pin 2 pin 1
pin 4 pin 3

DM27326

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27328.
 - 4) Re-connect connector DM27327.
 - 5) Re-connect connector DM27326.
 - 6) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-59 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 292
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 7) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (8) Re-connect connector DM27326.
- (9) Re-connect connector DM27328.
- (10) Do a wiring check between flap skew sensor L3 A, M27327 and flap skew sensor L4 A, M27329:
- (a) Disconnect the electrical connector DM27329 from the flap skew sensor L4 A, M27329.
- (b) Do a wiring check between these pins of connector DM27329 at the flap skew sensor L4 A, M27329 and connector DM27327 at the flap skew sensor L3 A, M27327 (WDM 27-59-11):

DM27329	DM27327
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27329.
 - 4) Re-connect connector DM27327.
 - 5) Remove the safety tags and close these circuit breakers:
- Standby Power Management Panel, P310**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|-------------|
| A | 8 | C27513 | SNSR EXC 1 |
| D | 3 | C27601 | FSEU 1 |
- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DM27327.
- (13) Re-connect connector DM27329.
- (14) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-59 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 293
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (15) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (16) Look for a broken or disconnected torque tube between transmission No. 3 and transmission No. 4:
- (a) If the flap is retracted, remove these access panels to get access to the torque tubes,

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
 - (b) If you see a broken or disconnected torque tube, do these steps:
 - 1) Replace the applicable torque tube or torque tube support:
 - a) These are the tasks:
Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.
 - b) These are the tasks:
Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel
 - 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If you do not see a broken torque tube, then continue.
- (17) For flap support No. 3, do this task: Outboard Flap Support Aft Fairing Removal, AMM TASK 27-51-18-000-802.
- (18) Visually examine these components on flap support No. 3 and replace those that have damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-802,
Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-802.
 - (b) Transmission and yoke.

EFFECTIVITY
ARO ALL

27-59 TASK 834

D633W103-ARO

Page 294
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802,
Inboard Flap Outboard Transmission Installation, AMM TASK 27-51-15-400-802.

- (c) Flap support mechanism.

These are the tasks:

Pivot Link, Fairing Links and Spring Removal, AMM TASK 27-51-14-020-801,
Drive Arm Removal, AMM TASK 27-51-14-020-805.

- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (e) If you did not replace a component, then continue.

- (19) Look for a broken or disconnected torque tube between transmission No. 5 and transmission No. 6:

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes,

<u>Number</u>	<u>Name/Location</u>

652AB	Inboard Fixed Trailing Edge Panel

652CB	Inboard Fixed Trailing Edge Panel

652EB	Inboard Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube or torque tube support:

- a) These are the tasks:

Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.

- b) These are the tasks:

Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>

652AB	Inboard Fixed Trailing Edge Panel

652CB	Inboard Fixed Trailing Edge Panel

652EB	Inboard Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (c) If you do not see a broken torque tube, then continue.

- (20) For flap support No. 6, do this task: Outboard Flap Support Aft Fairing Removal, AMM TASK 27-51-18-000-802.

EFFECTIVITY
ARO ALL

27-59 TASK 834

D633W103-ARO

Page 295
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (21) Visually examine these components on flap support No. 6 and replace those that have damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-802,
Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-802.
 - (b) Transmission and yoke.
These are the tasks:
Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802,
Inboard Flap Outboard Transmission Installation, AMM TASK 27-51-15-400-802.
 - (c) Flap support mechanism.
These are the tasks:
Pivot Link, Fairing Links and Spring Removal, AMM TASK 27-51-14-020-801,
Drive Arm Removal, AMM TASK 27-51-14-020-805.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (22) For flap supports No. 3 and No. 6, do this task: Outboard Flap Support Aft Fairing Installation, AMM TASK 27-51-18-400-802.

————— **END OF TASK** —————

835. Flap Skew Sensors 4 and 5 Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25401.

B. Initial Evaluation

- (1) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only:
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the HIGH LIFT Eicas maintenance page to see which flap skew sensor indication does not agree with the other indications:
- (a) Look at the indications OUTBD FLAP L4 A and R5 A to see which does not agree with L4 B and R5 B.
 - (b) If the indication OUTBD FLAP R5 A does not agree with the other indications, look for problems at flap support No. 5 on the right wing first.
 - (c) If the indication OUTBD FLAP L4 A does not agree with the other indications, look for problems at flap support No. 4 on the left wing first.
- (2) Replace the flap skew sensor R5 A, M27328 on flap support No. 5.

EFFECTIVITY
ARO ALL

27-59 TASKS 834-835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 296
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,
Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.

- (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the flap skew sensor L4 A, M27329 on flap support No. 4.

These are the tasks:

Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,
Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.

- (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (5) Do a wiring check between FSEU 1, M27001 and flap skew sensor R5 A, M27328:
 - (a) Disconnect the electrical connector DM27328 from the flap skew sensor R5 A, M27328.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27328 at the flap skew sensor R5 A, M27328 (WDM 27-58-11) and (WDM 27-59-13):

DM27001AA	DM27328
pin K10	pin 5
pin K11	pin 6
pin A3	pin 1
pin B3	pin 3

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27328.

EFFECTIVITY
ARO ALL

27-59 TASK 835

D633W103-ARO

Page 297
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between FSEU 1, M27001 and flap skew sensor L4 A, M27329.
- (a) Disconnect electrical connector DM27329 from the flap skew sensor L4 A, M27329.
- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27329 at the flap skew sensor L4 A, M27329 (WDM 27-58-11) and (WDM 27-59-11):

DM27001AC

pin A10 pin 5
pin A11 pin 6
pin K3 pin 1
pin J3 pin 3

DM27329

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27329.
 - 4) Re-connect connector DM27328.
 - 5) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (7) Re-connect connector DM27329.
- (8) Re-connect connector DM27328.
- (9) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-59 TASK 835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (10) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (11) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (12) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (13) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (14) Look for a broken or disconnected torque tube between transmission No. 4 and the flap PDU in the left wheel well.
- (a) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube.
These are the tasks:
Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not see a broken torque tube, then continue.
- (15) Visually examine these components on flap support No. 4 and replace those that have damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-801,
Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-801.

EFFECTIVITY
ARO ALL

27-59 TASK 835

D633W103-ARO

Page 298.1
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Transmission and yoke.
These are the tasks:
Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801,
Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801.
 - (c) Flap support mechanism.
These are the tasks:
Bellcrank and Drive Links Removal, AMM TASK 27-51-13-000-801,
Bellcrank and Drive Links Installation, AMM TASK 27-51-13-400-804.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (e) If you did not replace a component, then continue.
- (16) Look for a broken or disconnected torque tube between transmission No. 5 and the flap PDU in the right wheel well.
- (a) If you see a broken or disconnected torque tube, do these steps:
 - 1) Replace the applicable torque tube.
These are the tasks:
Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If you do not see a broken torque tube, then continue.
- (17) Visually examine these components on flap support No. 5 and replace those that have damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-801,
Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-801.
 - (b) Transmission and yoke.
These are the tasks:
Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801,
Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801.
 - (c) Flap support mechanism.
These are the tasks:
Bellcrank and Drive Links Removal, AMM TASK 27-51-13-000-801,
Bellcrank and Drive Links Installation, AMM TASK 27-51-13-400-804.

EFFECTIVITY
ARO ALL

27-59 TASK 835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.2
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you did not replace a component, then continue.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (18) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

836. Flap Skew Sensor 1 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20282.

B. Description

- (1) There is one Skew Sensor installed at Flap Supports 1 and 2.
 - (a) Sensor M27338 is installed at Flap Support No. 1.
 - (b) Sensor M27339 is installed at Flap Support No. 2.

C. Possible Causes

- (1) Flap Skew Sensor L1 B, M27338
- (2) Wiring
- (3) FSEU 2, M27002

D. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

E. Related Data

- (1) WDM 27-59-12

F. Initial Evaluation

- (1) Use the Primary System to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT Maintenance Page on the EICAS Display to make sure that FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM Switch to put FSEU 2 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-59 TASKS 835-836

D633W103-ARO

Page 298.3
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

G. Fault Isolation Procedure - With Flap Skew Detection Redesign

- (1) Replace the Flap Skew Sensor L1 B, M27338 on the No. 1 Flap Support Mechanism. These are the tasks:
 - Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002
 - Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002
- (a) Do the Repair Confirmation at the end of this task.
- (2) Do a wiring check between the FSEU 2 and Flap Skew Sensor L1 B, M27338 as follows (WDM 27-59-12):
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect the electrical connector, DM27338 from the Flap Skew Sensor L1 B, M27338.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (d) Examine the wiring as follows:

FSEU 2	SKEW SNSR
M27002AC	L1B
	DM27338B
pin J11	pin 5
pin K11	pin 6

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - 3) Re-connect connector DM27338B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do the Repair Confirmation at the end of this task.
 - (f) If you do not find a problem with the wiring, continue.
- (3) Do a wiring check between Flap Skew Sensors L1B, M27338 and L2A, M27339 (WDM 27-59-12):
 - (a) Disconnect the electrical connector, DM27333 from the Flap Skew Sensor L2 B, M27339.
 - (b) Examine the wiring as follows :

EFFECTIVITY
ARO ALL

27-59 TASK 836

D633W103-ARO

Page 298.4
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

SKEW SNSR

L1B

DM27338B

pin 1 pin 2

pin 3 pin 4

SKEW SNSR

L2A

DM27339A

(c) If you find a problem with the wiring, do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27338B.
- 3) Re-connect connector DM27339A.
- 4) Re-install FSEU 2, M27002. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- 5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

6) Do the Repair Confirmation at the end of this task.

(d) If you do not find a problem with the wiring, continue.

- (4) Install a new FSEU 2, M27002. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (5) Re-connect the electrical connector, DM27338B on the Flap Skew Sensor L1 B.
- (6) Re-connect the electrical connector, DM27339A on the Flap Skew Sensor L2 A.
- (7) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

(8) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Use the Primary System to extend or retract the flaps to another position. This is the task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT Maintenance Page on the EICAS Display to make sure that FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM Switch to put FSEU 2 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-59 TASK 836

D633W103-ARO

Page 298.5
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

837. Flap Skew Sensor 2 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20292.

B. General

- (1) There is one skew sensor installed at flap supports 2 and 3.
 - (a) Sensor M27339 is installed at flap support No. 2.
 - (b) Sensor M27340 is installed at flap support No. 3.

C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Replace the flap skew sensor L2 B, M27333 on the number 2 flap support mechanism.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 2, M27002 and flap skew sensor L2 B, M27333:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect the electrical connector, DM27333 from the flap skew sensor L2 B, M27333.
 - (c) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (d) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27333 at the flap skew sensor L2 B, M27333 (WDM 27-59-12):

DM27002AC	DM27333
pin F11	pin 5
pin G11	pin 6

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27333.

EFFECTIVITY
ARO ALL

27-59 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.6
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (f) If you did not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do a wiring check between flap skew sensors L3 B, M27335 and L2 B, M27333:
- (a) Disconnect the electrical connector, DM27335 from the flap skew sensor L3 B, M27335.
- (b) Do a wiring check between these pins of connector DM27335 at the flap skew sensor L3 B, M27335 and connector DM27333 at the flap skew sensor L2 B, M27333 (WDM 27-59-12):

DM27335	DM27333
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27333.
 - 3) Re-connect connector DM27335.
 - 4) Re-install FSEU 2, M27002.
 - 5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

EFFECTIVITY
ARO ALL

27-59 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.7
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (5) Re-connect the electrical connector, DM27335 on the flap skew sensor L3 B.
- (6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (7) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

— END OF TASK —

838. Flap Skew Sensor 3 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20302.

B. General

- (1) There is one skew sensor installed at flap supports 3 and 4.
 - (a) Sensor M27340 is installed at flap support No. 3.
 - (b) Sensor M27341 is installed at flap support No. 4.

C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Replace the flap skew sensor L3 B, M27335 on the number 3 flap support mechanism.

These are the tasks:

Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,

Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 2, M27002 and flap skew sensor L3 B, M27335:

EFFECTIVITY
ARO ALL

27-59 TASKS 837-838

D633W103-ARO

Page 298.8
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect the electrical connector, DM27335 from the flap skew sensor L3 B, M27335.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27335 at the (WDM 27-59-12):

DM27002AC	DM27335
pin C11	pin 5
pin D11	pin 6

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27335.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (f) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do a wiring check between flap skew sensors L4 B, M27337 and L3 B, M27335:
- (a) Disconnect the electrical connector, DM27337 from the flap skew sensor L4 B, M27337.
- (b) Do a wiring check between these pins of connector DM27337 at the flap skew sensor L4 B, M27337 and connector DM27335 at the flap skew sensor L3 B, M27335 (WDM 27-59-12):

DM27337	DM27335
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:

EFFECTIVITY
ARO ALL

27-59 TASK 838

D633W103-ARO

Page 298.9
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Repair the wiring.
- 2) Re-connect connector DM27335.
- 3) Re-connect connector DM27337.
- 4) Re-install FSEU 2, M27002.
- 5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (5) Re-connect the electrical connector, DM27335 on the flap skew sensor L3 B.
- (6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (7) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

839. Flap Skew Sensor 4 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20312.

B. General

- (1) There is one skew sensor installed at flap support 4.
 - (a) Sensor M27341 is installed at flap support No. 4.

EFFECTIVITY
ARO ALL

27-59 TASKS 838-839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.10
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Replace the flap skew sensor L4 A, M27341 on the number 4 flap support mechanism.

These are the tasks:

Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,

Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 2, M27002 and flap skew sensor L4 A, M27341:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect the electrical connector, DM27341A from the flap skew sensor L4 A, M27341.
 - (c) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (d) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27341 at the flap skew sensor L4 A, M27341 (WDM 27-59-12):

<u>DM27002AC</u>	<u>DM27341A</u>
pin A10	pin 5
pin A11	pin 6

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27341A.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

EFFECTIVITY
ARO ALL

27-59 TASK 839

D633W103-ARO

Page 298.11
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- f) If you do not find problems with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Re-connect the electrical connector, DM27341 on the flap skew sensor L4 A.
- (5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

840. Flap Skew Sensor 5 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20322.

B. General

- (1) There is one skew sensor installed at flap support 5.
 - a) Sensor M27342 is installed at flap support No. 5.

C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Replace the flap skew sensor R5 B, M27336 on the number 5 flap support mechanism.

These are the tasks:

Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,

Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 2, M27002 and flap skew sensor R5 B, M27336:

EFFECTIVITY
ARO ALL

27-59 TASKS 839-840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.12
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect the electrical connector, DM27336 from the flap skew sensor R5 B, M27336.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27336 at the flap skew sensor R5 B, M27336 (WDM 27-59-14) and (WDM 27-58-12):

DM27002AA	DM27336
pin K10	pin 5
pin K11	pin 6

DM27002AA	DM27336
pin A3	pin 1
pin B3	pin 3

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27336.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (f) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Re-connect the electrical connector, DM27336 on the flap skew sensor R5 B.

EFFECTIVITY
ARO ALL

27-59 TASK 840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.13
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

— END OF TASK —

841. Flap Skew Sensor 6 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20332.

B. General

- (1) There is one skew sensor installed at flap supports 5 and 6.
- (a) Sensor M27342 is installed at flap support No. 5.
- (b) Sensor M27343 is installed at flap support No. 6.

C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Replace the flap skew sensor R6 B, M27334 on the number 6 flap support mechanism.

These are the tasks:

Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,

Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 2, M27002 and flap skew sensor R6 B, M27334:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-59 TASKS 840-841

D633W103-ARO

Page 298.14
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Disconnect the electrical connector, DM27334 from the flap skew sensor R6 B, M27334.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27334 at the flap skew sensor R6 B, M27334 (WDM 27-59-14):

DM27002AA		DM27334	
pin H11	.....	pin 5	
pin G11	.....	pin 6	

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27334.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (f) If you do not a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do a wiring check between flap skew sensor R5 B, M27336 and flap skew sensor R6 B, M27334:
- (a) Disconnect the electrical connector, DM27336 from the flap skew sensor R5 B, M27336.
 - (b) Do a wiring check between these pins of connector DM27336 at the flap skew sensor R5 B, M27336 and connector DM27334 at the flap skew sensor R6 B, M27334 (WDM 27-59-14):

DM27336		DM27334	
pin 2	.....	pin 1	
pin 4	.....	pin 3	

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27334.
 - 3) Re-connect connector DM27336.
 - 4) Re-install FSEU 2, M27002.

EFFECTIVITY
ARO ALL

27-59 TASK 841

D633W103-ARO

Page 298.15
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (5) Re-connect the electrical connector, DM27334 on the flap skew sensor R6 B.
- (6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (7) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

842. Flap Skew Sensor 7 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20342.

B. General

- (1) There is one skew sensor installed at flap supports 6 and 7.
- (a) Sensor M27343 is installed at flap support No. 6.
- (b) Sensor M27344 is installed at flap support No. 7.

EFFECTIVITY
ARO ALL

27-59 TASKS 841-842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.16
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Replace the flap skew sensor R7 B, M27332 on the number 7 flap support mechanism.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 2, M27002 and flap skew sensor R7 B, M27332:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect the electrical connector, DM27332 from the flap skew sensor R7 B, M27332.
 - (c) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27332 at the flap skew sensor R7 B, M27332 (WDM 27-59-14):

<u>DM27002AA</u>	<u>DM27332</u>
pin E11	pin 5
pin D11	pin 6

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27332.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

EFFECTIVITY
ARO ALL

27-59 TASK 842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.17
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (f) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do a wiring check between flap skew sensor R6 B, M27334 and flap skew sensor R7 B, M27332:
 - (a) Disconnect the electrical connector, DM27334 from the flap skew sensor R6 B, M27334.
 - (b) Do a wiring check between these pins of connector DM27334 at the flap skew sensor R6 B, M27334 and connector DM27332 at the flap skew sensor R7 B, M27332 (WDM 27-59-14):

DM27334	DM27332
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27332.
 - 3) Re-connect connector DM27334.
 - 4) Re-install FSEU 2, M27002.
 - 5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (5) Re-connect the electrical connector, DM27332 on the flap skew sensor R7 B.
- (6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-59 TASK 842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.18
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (7) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

843. Flap Skew Sensor 8 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20352.

B. General

- (1) There is one skew sensor installed at flap supports 7 and 8.
- (a) Sensor M27344 is installed at flap support No. 7.
- (b) Sensor M27345 is installed at flap support No. 8.

C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Replace the flap skew sensor R8 B, M27330 on the number 8 flap support mechanism.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 2, M27002 and flap skew sensor R8 B, M27330:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect the electrical connector, DM27330 from the flap skew sensor R8 B, M27330.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27330 at the flap skew sensor R8 B, M27330 (WDM 27-59-14):

EFFECTIVITY
ARO ALL

27-59 TASKS 842-843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.19
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AA

pin B11 pin 5
pin A11 pin 6

DM27330

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27330.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (f) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do a wiring check between flap skew sensor R7 B, M27332 and flap skew sensor R8 B, M27330:
- (a) Disconnect the electrical connector, DM27332 from the flap skew sensor R7 B, M27332.
 - (b) Do a wiring check between these pins of connector DM27332 at the flap skew sensor R7 B, M27332 and connector DM27330 at the flap skew sensor R8 B, M27330 (WDM 27-59-14):

DM27332

pin 2 pin 1
pin 4 pin 3

DM27330

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27330.
 - 3) Re-connect connector DM27332.
 - 4) Re-install FSEU 2, M27002.
 - 5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

EFFECTIVITY
ARO ALL

27-59 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.20
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	4	C27602	FSEU 2

- 6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (5) Re-connect the electrical connector, DM27330 on the flap skew sensor R8 B.
- (6) Re-connect the electrical connector, DM27332 on the flap skew sensor R7 B.
- (7) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (8) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

844. Flap Skew Sensors 1 and 8 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20652.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-59 TASKS 843-844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.21
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor R8 B, M27330 on the number 8 flap support mechanism.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the flap skew sensor L1 B, M27331 on the number 1 flap support mechanism.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (4) Do a wiring check between FSEU 2, M27002 and flap skew sensor R8 B, M27330:
- (a) Disconnect the electrical connector DM27330 from the flap skew sensor R8 B, M27330.
- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins of connector DM27002AA at the E1-6 shelf and connector DM27330 at the flap skew sensor R8 B, M27330 (WDM 27-59-14):

DM27002AA	DM27330
pin B11	pin 5
pin A11	pin 6

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
- 2) Re-install FSEU 2, M27002.
- 3) Re-connect connector DM27330.
- (e) If you do not find a problem with the wiring, then continue.
- (5) Do a wiring check between FSEU 2, M27002 and flap skew sensor L1 B, M27331.
- (a) Disconnect electrical connector DM27331 from the flap skew sensor L1 B, M27331.
- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27331 at the flap skew sensor L1 B, M27331 (WDM 27-59-12):

EFFECTIVITY
ARO ALL

27-59 TASK 844

D633W103-ARO

Page 298.22
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AC

pin J11 pin 5
pin K11 pin 6

DM27331

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27331.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between flap skew sensor R8 B, M27330 and flap skew sensor R7 B, M27332:
 - (a) Disconnect the electrical connector DM27332 from the flap skew sensor R7 B, M27332.
 - (b) Do a wiring check between these pins of connector DM27332 at the flap skew sensor R7 B, M27332 and connector DM27330 at the flap skew sensor R8 B, M27330 (WDM 27-59-14):

DM27332

pin 2 pin 1
pin 4 pin 3

DM27330

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27330.
 - 4) Re-connect connector DM27332.
- (d) If you do not find a problem with the wiring, then continue.
- (7) Do a wiring check between flap skew sensor L1 B, M27331 and flap skew sensor L2 B, M27333:
 - (a) Disconnect the electrical connector DM27333 from the flap skew sensor L2 B, M27333.
 - (b) Do a wiring check between these pins of connector DM27333 at the flap skew sensor L2 B, M27333 and connector DM27331 at the flap skew sensor L1 B, M27331 (WDM 27-59-12):

DM27333

pin 2 pin 1
pin 4 pin 3

DM27331

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27333.
 - 4) Re-connect connector DM27331.
- (d) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-59 TASK 844

D633W103-ARO

Page 298.23
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (8) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (9) Re-connect connector DM27330.
- (10) Re-connect connector DM27331.
- (11) Re-connect connector DM27332.
- (12) Re-connect connector DM27333.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	11	C27604	FLAPS PRI DR CTRL 1

- (14) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

———— **END OF TASK** ————

845. Flap Skew Sensors 2 and 7 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20662.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor R7 B, M27332 on the number 7 flap support mechanism.

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the flap skew sensor L2 B, M27333 on the number 2 flap support mechanism.

These are the tasks:

EFFECTIVITY
ARO ALL

27-59 TASKS 844-845

D633W103-ARO

Page 298.24
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (4) Do a wiring check between FSEU 2, M27002 and flap skew sensor R7 B, M27332:
- (a) Disconnect the electrical connector DM27332 from the flap skew sensor R7 B, M27332.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27332 at the flap skew sensor R7 B, M27332 (WDM 27-59-14):

DM27002AA	DM27332
pin E11	pin 5
pin D11	pin 6

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27332.
 - (e) If you do not find a problem with the wiring, then continue.
- (5) Do a wiring check between FSEU 2, M27002 and flap skew sensor L2 B, M27333.
- (a) Disconnect electrical connector DM27333 from the flap skew sensor L2 B, M27333.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27333 at the flap skew sensor L2 B, M27333 (WDM 27-59-12):

DM27002AC	DM27333
pin F11	pin 5
pin G11	pin 6

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27333.
 - (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between flap skew sensor R7 B, M27332 and flap skew sensor R6 B, M27334:
- (a) Disconnect the electrical connector DM27334 from the flap skew sensor R6 B, M27334.

EFFECTIVITY
ARO ALL

27-59 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.25
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (b) Do a wiring check between these pins of connector DM27334 at the flap skew sensor R6 B, M27334 and connector DM27332 at the flap skew sensor R7 B, M27332 (WDM 27-59-14):

DM27334	DM27332
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27334.
 - 4) Re-connect connector DM27332.
- (d) If you do not find a problem with the wiring, then continue.
- (7) Do a wiring check between flap skew sensor L2 B, M27333 and flap skew sensor L3 B, M27335:
- (a) Disconnect the electrical connector DM27335 from the flap skew sensor R3 B, M27335.
- (b) Do a wiring check between these pins of connector DM27335 at the flap skew sensor L3 B, M27335 and connector DM27333 at the flap skew sensor L2 B, M27333 (WDM 27-59-12):

DM27327	DM27325
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27333.
 - 4) Re-connect connector DM27335.
- (d) If you do not find a problem with the wiring, then continue.
- (8) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (9) Re-connect connector DM27332.
- (10) Re-connect connector DM27333.
- (11) Re-connect connector DM27334.
- (12) Re-connect connector DM27335.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-59 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.26
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (14) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

846. Flap Skew Sensors 3 and 6 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20672.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor R6 B, M27334 on the number 6 flap support mechanism.

These are the tasks:

Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,

Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the flap skew sensor L3 B, M27335 on the number 3 flap support mechanism.
- These are the tasks:
- Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,
- Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (4) Do a wiring check between FSEU 2, M27002 and flap skew sensor R6 B, M27334:
- (a) Disconnect the electrical connector DM27334 from the flap skew sensor R6 B, M27334.
- (b) Remove FSEU 2, M27002 from the E4-1 shelf.

EFFECTIVITY
ARO ALL

27-59 TASKS 845-846

D633W103-ARO

Page 298.27
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (c) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27334 at the flap skew sensor R6 B, M27334 (WDM 27-59-14):

DM27002AA	DM27334
pin H11	pin 5
pin G11	pin 6

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27334.
- (e) If you do not find a problem with the wiring, then continue.
- (5) Do a wiring check between FSEU 2, M27002 and flap skew sensor L3 B, M27335.
- (a) Disconnect electrical connector DM27335 from the flap skew sensor L3 B, M27325.
- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27335 at the flap skew sensor L3 B, M27335 (WDM 27-59-12):

DM27002AC	DM27335
pin C11	pin 5
pin D11	pin 6

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27335.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between flap skew sensor R6 B, M27334 and flap skew sensor R5 B, M27336:
- (a) Disconnect the electrical connector DM27336 from the flap skew sensor R5 B, M27336.
- (b) Do a wiring check between these pins of connector DM27336 at the flap skew sensor R5 B, M27336 and connector DM27334 at the flap skew sensor R6 B, M27334 (WDM 27-59-14):

DM27336	DM273234
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27336.
 - 4) Re-connect connector DM27334
- (d) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-59 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.28
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (7) Do a wiring check between flap skew sensor L3 B, M27335 and flap skew sensor L4 B, M27337:
- (a) Disconnect the electrical connector DM27337 from the flap skew sensor R4 B, M27337.
 - (b) Do a wiring check between these pins of connector DM27337 at the flap skew sensor L4 B, M27337 and connector DM27335 at the flap skew sensor L3 B, M27335 (WDM 27-59-12):

DM27337	DM27335
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27337.
 - 4) Re-connect connector DM27335.
- (d) If you do not find a problem with the wiring, then continue.
- (8) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (9) Re-connect connector DM27334.
- (10) Re-connect connector DM27335.
- (11) Re-connect connector DM27336.
- (12) Re-connect connector DM27337.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (14) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

847. Flap Skew Sensors 4 and 5 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20682.

EFFECTIVITY
ARO ALL

27-59 TASKS 846-847

D633W103-ARO

Page 298.29
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the flap skew sensor R5 B, M27336 on the number 5 flap support mechanism.

These are the tasks:

Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,

Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the flap skew sensor L4 B, M27337 on the number 4 flap support mechanism.

These are the tasks:

Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,

Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (a) Disconnect the electrical connector DM27336 from the flap skew sensor R5 B, M27336.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27336 at the flap skew sensor R5 B, M27336 (WDM 27-58-12) and (WDM 27-59-14):

DM27002AA	DM27336
pin K10	pin 5
pin K11	pin 6
pin A3	pin 1
pin B3	pin 3

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27336.

EFFECTIVITY
ARO ALL

27-59 TASK 847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.30
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (e) If you do not find a problem with the wiring, then continue.
- (5) Do a wiring check between FSEU 2, M27002 and flap skew sensor L4 B, M27337.
- (a) Disconnect electrical connector DM27337 from the flap skew sensor L4 B, M27337.
- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27337 at the flap skew sensor L4 B, M27337 (WDM 27-58-12) and (WDM 27-59-12):

DM27002AC	DM27337
pin A10	pin 5
pin A11	pin 6
pin J3	pin 3
pin K3	pin 1

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27337.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (7) Re-connect connector DM27336.
- (8) Re-connect connector DM27337.
- (9) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (10) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

848. Flap Support No. 1 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20462.

EFFECTIVITY
ARO ALL

27-59 TASKS 847-848

D633W103-ARO

Page 298.31
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 1 and transmission No. 2:
 - (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel
 - (b) If you see a broken or disconnected torque tube, do these steps:
 - 1) Replace the applicable torque tube, torque tube support or no-back brake:
 - a) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
 - b) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-802.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel
 - 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (c) If you do not see a broken torque tube, then continue.
- (2) For flap support No. 1, do this task: Outboard Flap Support Fairing Removal, AMM TASK 27-51-28-000-801.
- (3) Visually examine these components and replace those that have damage:
 - (a) Ballscrew and gimbal.

EFFECTIVITY
ARO ALL

27-59 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.32
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801,
Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-26-400-801.

- (b) Transmission and yoke.

These are the tasks:

Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802,
Outboard Flap Outboard Transmission Installation, AMM TASK 27-51-25-400-802.

- (c) Flap support mechanism.

These are the tasks:

Outboard Flap Outboard Support Mechanism Removal, AMM TASK 27-51-22-000-801,
Outboard Flap Outboard Support Mechanism - Installation, AMM
TASK 27-51-22-400-801.

- (4) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) For flap support No. 1, do this task: Outboard Flap Support Fairing Installation, AMM TASK 27-51-28-400-801.
- (6) Replace the FSEU 2, M27002.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (7) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (8) Replace the two flap skew sensors M27323 and M27331 at flap support No. 1.
- These are the tasks:
- Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.
- (9) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-59 TASK 848

D633W103-ARO

Page 298.33
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (10) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 1
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27323 from the flap skew sensor M27323.
- (e) Disconnect the connector DM27331 from the flap skew sensor M27331.
- (f) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27323 at the flap skew sensor, M27323 (WDM 27-59-11):

DM27001AC	DM27323
pin J11	pin 5
pin K11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27331 at the flap skew sensor, M27331 (WDM 27-59-12):

DM27002AC	DM27331
pin J11	pin 5
pin K11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27323.
- (l) Reconnect connector DM27331.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-59 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.34
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (11) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (12) Do this check of the wiring between the flap skew sensors on the flap supports No. 1 and No. 2:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (b) Disconnect the connector DM27323 from the flap skew sensor M27323.
- (c) Disconnect the connector DM27331 from the flap skew sensor M27331.
- (d) Disconnect the connector DM27325 from the flap skew sensor M27325.
- (e) Disconnect the connector DM27333 from the flap skew sensor M27333.
- (f) Do a wiring check between these pins of connector DM27325 at the flap skew sensor, M27325 and connector DM27323 at the flap skew sensor, M27323 (WDM 27-59-11):

DM27325	DM27323
pin 2	pin 1
pin 4	pin 3

- (g) Do a wiring check between these pins of connector DM27333 at the flap skew sensor, M27333 and connector DM27331 at the flap skew sensor, M27331 (WDM 27-59-12):

DM27333	DM27331
pin 2	pin 1
pin 4	pin 3

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Reconnect connector DM27325.
- (j) Reconnect connector DM27333.

EFFECTIVITY
ARO ALL

27-59 TASK 848

D633W103-ARO

Page 298.35
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (k) Reconnect connector DM27323.
- (l) Reconnect connector DM27331.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (13) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (14) Replace the two flap skew sensors M27322 and M27330 at flap support No. 8.
These are the tasks:
Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.
- (15) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (16) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 8:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.

EFFECTIVITY
ARO ALL

27-59 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.36
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27322 from the flap skew sensor M27322.
- (e) Disconnect the connector DM27330 from the flap skew sensor M27330.
- (f) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27322 at the flap skew sensor, M27322 (WDM 27-59-13):

DM27001AA	DM27322
pin B11	pin 5
pin A11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27330 at the flap skew sensor, M27330 (WDM 27-59-14):

DM27002AA	DM27330
pin B11	pin 5
pin A11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27322.
- (l) Reconnect connector DM27330.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (17) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (18) Do this check of the wiring between the flap skew sensors on the flap supports No. 7 and No. 8:

EFFECTIVITY
ARO ALL

27-59 TASK 848

D633W103-ARO

Page 298.37
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (b) Disconnect the connector DM27324 from the flap skew sensor M27324.
(c) Disconnect the connector DM27332 from the flap skew sensor M27332.
(d) Disconnect the connector DM27322 from the flap skew sensor M27322.
(e) Disconnect the connector DM27330 from the flap skew sensor M27330.
(f) Do a wiring check between these pins of connector DM27324 at the flap skew sensor, M27324 and connector DM27322 at the flap skew sensor, M27322 (WDM 27-59-13):

DM27324	DM27322
pin 2	pin 1
pin 4	pin 3

- (g) Do a wiring check between these pins of connector DM27332 at the flap skew sensor, M27332 and connector DM27330 at the flap skew sensor, M27330 (WDM 27-59-14):

DM27332	DM27330
pin 2	pin 1
pin 4	pin 3

- (h) If you find a problem with the wiring, repair the wiring.
(i) Reconnect connector DM27322.
(j) Reconnect connector DM27330.
(k) Reconnect connector DM27324.
(l) Reconnect connector DM27332.
(m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (19) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

EFFECTIVITY
ARO ALL

27-59 TASK 848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.38
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

849. Flap Supports No. 1 and No. 2 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20472.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 2 and transmission No. 3:

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube or torque tube support:

- a) These are the tasks:

Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.

- b) These are the tasks:

Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-59 TASKS 848-849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.39
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (c) If you do not see a broken or disconnected torque tube, then continue.
 - (2) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (3) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

— END OF TASK —

850. Flap Supports No. 1, No. 2 and No. 3 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20482.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 3 and transmission No. 4:
 - (a) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-59 TASKS 849-850

D633W103-ARO

Page 298.40
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube or torque tube support:
 - a) These are the tasks:
Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.
 - b) These are the tasks:
Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

- (c) Install these access panels

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- (d) If you do not see a broken or disconnected torque tube, then continue.

- (2) Replace FSEU 2, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (3) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

851. Flap Supports No. 1, 2, 3 and 4 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20492.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-59 TASKS 850-851

D633W103-ARO

Page 298.41
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube in the left wheel well, between transmission No. 4 and the flap power drive unit:



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube.

These are the tasks:

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
- 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (d) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (e) If you do not see a broken or disconnected torque tube, then continue.
- (2) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-59 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.42
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

852. Flap Supports No. 1 and No. 8 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20502.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 1 and transmission No. 2:
 - (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel
 - (b) If you see a broken or disconnected torque tube, do these steps:
 - 1) Replace the applicable torque tube, torque tube support or no-back brake:
 - a) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
 - b) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-802.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

EFFECTIVITY
ARO ALL

27-59 TASKS 851-852

D633W103-ARO

Page 298.43
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

- a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

- (c) If you do not see a broken or disconnected torque tube, then continue.

- (2) For flap support No. 1, do this task: Outboard Flap Support Fairing Removal, AMM TASK 27-51-28-000-801.

- (3) Visually examine these components on flap support No. 1 and replace those that have damage:

- (a) Ballscrew and gimbal.

These are the tasks:

Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801,
Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-26-400-801.

- (b) Transmission and yoke.

These are the tasks:

Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802,
Outboard Flap Outboard Transmission Installation, AMM TASK 27-51-25-400-802.

- (c) Flap support mechanism.

These are the tasks:

Outboard Flap Outboard Support Mechanism Removal, AMM TASK 27-51-22-000-801,
Outboard Flap Outboard Support Mechanism - Installation, AMM
TASK 27-51-22-400-801.

- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

- 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

- (e) If you did not replace a component, then continue.

- (4) Look for a broken or disconnected torque tube between transmission No. 7 and transmission No. 8:

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube, torque tube support or no-back brake:

EFFECTIVITY
ARO ALL

27-59 TASK 852

D633W103-ARO

Page 298.44
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
- b) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.
- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.
- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel
- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 2, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the
maintenance message, then you corrected the fault.
 - (c) If you do not see a broken torque tube, then continue.
- (5) For flap support No. 8, do this task: Outboard Flap Support Fairing Removal, AMM
TASK 27-51-28-000-801.
- (6) Visually examine these components on flap support No. 8 and replace those that have
damage:
 - (a) Ballscrew and gimbal.
These are the tasks:
Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801,
Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-26-400-801.
 - (b) Transmission and yoke.
These are the tasks:
Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802,
Outboard Flap Outboard Transmission Installation, AMM TASK 27-51-25-400-802.
 - (c) Flap support mechanism.
These are the tasks:
Outboard Flap Outboard Support Mechanism Removal, AMM TASK 27-51-22-000-801,
Outboard Flap Outboard Support Mechanism - Installation, AMM
TASK 27-51-22-400-801.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System,
System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the
maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-59 TASK 852

D633W103-ARO

Page 298.45
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (7) For flap supports No. 1 and No. 8, do this task: Outboard Flap Support Fairing Installation, AMM TASK 27-51-28-400-801.
- (8) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (9) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

853. Flap Support No. 2 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20512.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) For flap support No. 2, do this task: Outboard Flap Support Fairing Removal, AMM TASK 27-51-28-000-801.
- (2) Visually examine these components on flap support No. 2 and replace those that have damage:
 - (a) Ballscrew and gimbal.

These are the tasks:

Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-802,
Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-802.
 - (b) Transmission and yoke.

These are the tasks:

Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801,
Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801.
 - (c) Flap support mechanism.

These are the tasks:

EFFECTIVITY
ARO ALL

27-59 TASKS 852-853

D633W103-ARO

Page 298.46
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Outboard Flap Inboard Support Mechanism Removal, AMM TASK 27-51-22-000-802,
Outboard Flap Inboard Support Mechanism - Installation, AMM TASK 27-51-22-400-802.

- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (3) Replace the two flap skew sensors M27325 and M27333 at flap support No. 2.
- These are the tasks:
- Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.
- (4) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 2
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27325 from the flap skew sensor M27325.
- (e) Disconnect the connector DM27333 from the flap skew sensor M27333.
- (f) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27323 at the flap skew sensor, M27325 (WDM 27-59-11):

DM27001AC	DM27325
pin F11	pin 5
pin G11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27333 at the flap skew sensor, M27333 (WDM 27-59-12):

EFFECTIVITY
ARO ALL

27-59 TASK 853

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.47
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AC

pin F11 pin 5
pin G11 pin 6

DM27333

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27325.
- (l) Reconnect connector DM27333.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (7) For flap support No. 2, do this task: Outboard Flap Support Fairing Installation, AMM TASK 27-51-28-400-801.
- (8) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (9) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-59 TASK 853

D633W103-ARO

Page 298.48
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

854. Flap Supports No. 2 and No. 7 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20522.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 2 and transmission No. 3:

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube or torque tube support:

- a) These are the tasks:

Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.

- b) These are the tasks:

Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 2, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-59 TASK 854

D633W103-ARO

Page 298.49
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (2) Look for a broken or disconnected torque tube between transmission No. 6 and transmission No. 7:
- (a) If the flap is retracted, remove these access panels to get access to the torque tubes
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------------------|
| 652HB | Inboard Fixed Trailing Edge Panel |
| 652JB | Fixed Trailing Edge Panel |
| 652LB | Outboard Fixed Trailing Edge Panel |
| 661AB | Midspan Fixed Trailing Edge Panel |
| 661BB | Midspan Fixed Trailing Edge Panel |
- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube or torque tube support:
- a) These are the tasks:
- Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
- b) These are the tasks:
- Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.
- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.
- 3) Install these access panels if you removed them,
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------------------|
| 652HB | Inboard Fixed Trailing Edge Panel |
| 652JB | Fixed Trailing Edge Panel |
| 652LB | Outboard Fixed Trailing Edge Panel |
| 661AB | Midspan Fixed Trailing Edge Panel |
| 661BB | Midspan Fixed Trailing Edge Panel |
- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 2, Test of Flaps Only.
- a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (c) If you do not see a broken or disconnected torque tube, then continue.
- (3) Replace FSEU 2, M27002.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-59 TASK 854

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.50
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

855. Flap Support No. 3 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20532.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) For flap support No. 3, do this task: Outboard Flap Support Aft Fairing Removal, AMM TASK 27-51-18-000-802.
- (2) Visually examine these components on flap support No. 3 and replace those that have damage:
 - (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-802,
Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-802.
 - (b) Transmission and yoke.
These are the tasks:
Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802,
Inboard Flap Outboard Transmission Installation, AMM TASK 27-51-15-400-802.
 - (c) Flap support mechanism.
These are the tasks:
Pivot Link, Fairing Links and Spring Removal, AMM TASK 27-51-14-020-801,
Drive Arm Removal, AMM TASK 27-51-14-020-805.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-59 TASKS 854-855

D633W103-ARO

Page 298.51
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Replace the two flap skew sensors M27327 and M27335 at flap support No. 3.
These are the tasks:
Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,
Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.
- (4) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 3
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27327 from the flap skew sensor M27327.
- (e) Disconnect the connector DM27335 from the flap skew sensor M27335.
- (f) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27327 at the flap skew sensor, M27327 (WDM 27-59-11):

DM27001AC	DM27327
pin C11	pin 5
pin D11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27335 at the flap skew sensor, M27335 (WDM 27-59-12):

DM27002AC	DM27335
pin C11	pin 5
pin D11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27327.

EFFECTIVITY
ARO ALL

27-59 TASK 855

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.52
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (l) Reconnect connector DM27335.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (7) For flap support No. 3, do this task: Outboard Flap Support Aft Fairing Installation, AMM TASK 27-51-18-400-802.
- (8) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (9) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

856. Flap Supports No. 3 and No. 6 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20542.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-59 TASKS 855-856

D633W103-ARO

Page 298.53
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 3 and transmission No. 4:

- (a) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube or torque tube support:

- a) These are the tasks:

- Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
 - Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.

- b) These are the tasks:

- Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
 - Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

- 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

- a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

- (c) Install these access panels

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- (d) If you do not see a broken or disconnected torque tube, then continue.

- (2) Look for a broken or disconnected torque tube between transmission No. 5 and transmission No. 6:

- (a) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube or torque tube support:

EFFECTIVITY
ARO ALL

27-59 TASK 856

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.54
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) These are the tasks:
Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.
 - b) These are the tasks:
Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (c) Install these access panels

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel
 - (d) If you do not see a broken or disconnected torque tube, then continue.
 - (3) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (4) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
- NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

857. Flap Support No. 4 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20552.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-59 TASKS 856-857

D633W103-ARO

Page 298.55
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Visually examine these components on flap support No. 4 and replace those that have damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-801,
Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-801.
 - (b) Transmission and yoke.
These are the tasks:
Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801,
Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801.
 - (c) Flap support mechanism.
These are the tasks:
Bellcrank and Drive Links Removal, AMM TASK 27-51-13-000-801,
Bellcrank and Drive Links Installation, AMM TASK 27-51-13-400-804.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (4) Replace the two flap skew sensors M27329 and M27337 at flap support No. 4.
These are the tasks:
Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,
Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.
- (5) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-59 TASK 857

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.56
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (6) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 4
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27329 from the flap skew sensor M27329.
- (e) Disconnect the connector DM27335 from the flap skew sensor M27335.
- (f) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27329 at the flap skew sensor, M27329 (WDM 27-59-11):

DM27001AC	DM27329
pin A10	pin 5
pin A11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27337 at the flap skew sensor, M27337 (WDM 27-59-12):

DM27002AC	DM27337
pin A10	pin 5
pin A11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27329.
- (l) Reconnect connector DM27337.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-59 TASK 857

D633W103-ARO

Page 298.57
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (7) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (8) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (9) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (10) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

858. Flap Supports No. 4 and No. 5 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20562.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-59 TASKS 857-858

D633W103-ARO

Page 298.58
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Look for a broken or disconnected torque tube in the left wheel well, between transmission No. 4 and the flap power drive unit:
- (a) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube.
These are the tasks:
Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If you do not see a broken or disconnected torque tube, then continue.
- (4) Look for a broken or disconnected torque tube in the right wheel well, between transmission No. 5 and the flap power drive unit:
- (a) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube.
These are the tasks:
Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-59 TASK 858

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.59
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If you do not see a broken or disconnected torque tube, then continue.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

- (6) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (7) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

END OF TASK

859. Flap Support No. 5 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20572.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-59 TASKS 858-859

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.60
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Visually examine these components on flap support No. 5 and replace those that have damage:
 - (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-801,
Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-801.
 - (b) Transmission and yoke.
These are the tasks:
Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801,
Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801.
 - (c) Flap support mechanism.
These are the tasks:
Bellcrank and Drive Links Removal, AMM TASK 27-51-13-000-801,
Bellcrank and Drive Links Installation, AMM TASK 27-51-13-400-804.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (4) Replace the two flap skew sensors M27322 and M27330 at flap support No. 5.
These are the tasks:
Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,
Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.
- (5) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (6) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 5:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-59 TASK 859

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.61
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27328 from the flap skew sensor M27328.
- (e) Disconnect the connector DM27336 from the flap skew sensor M27336.
- (f) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27328 at the flap skew sensor, M27328 (WDM 27-59-13):

DM27001AA	DM27328
pin K10	pin 5
pin K11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27336 at the flap skew sensor, M27336 (WDM 27-59-14):

DM27002AA	DM27336
pin K10	pin 5
pin K11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27328.
- (l) Reconnect connector DM27336.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (7) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (8) Replace FSEU 2, M27002.

EFFECTIVITY
ARO ALL

27-59 TASK 859

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.62
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (9) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

860. Flap Supports No. 5, 6, 7 and 8 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20582.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube in the right wheel well, between transmission No. 5 and the flap power drive unit:



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube.

These are the tasks:

EFFECTIVITY
ARO ALL

27-59 TASKS 859-860

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.63
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
- 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (d) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (e) If you do not see a broken or disconnected torque tube, then continue.
- (2) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (3) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

861. Flap Support No. 6 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20592.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-59 TASKS 860-861

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.64
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) For flap support No. 6, do this task: Outboard Flap Support Aft Fairing Removal, AMM TASK 27-51-18-000-802.
- (2) Visually examine these components on flap support No. 6 and replace those that have damage:
 - (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-802,
Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-802.
 - (b) Transmission and yoke.
These are the tasks:
Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802,
Inboard Flap Outboard Transmission Installation, AMM TASK 27-51-15-400-802.
 - (c) Flap support mechanism.
These are the tasks:
Pivot Link, Fairing Links and Spring Removal, AMM TASK 27-51-14-020-801,
Drive Arm Removal, AMM TASK 27-51-14-020-805.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (3) Replace the two flap skew sensors M27326 and M27334 at flap support No. 6.
These are the tasks:
Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,
Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.
- (4) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 6:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-59 TASK 861

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.65
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27326 from the flap skew sensor M27326.
- (e) Disconnect the connector DM27334 from the flap skew sensor M27334.
- (f) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27326 at the flap skew sensor, M27325 (WDM 27-59-13):

DM27001AA	DM27326
pin H11	pin 5
pin G11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27334 at the flap skew sensor, M27334 (WDM 27-59-14):

DM27002AA	DM27330
pin B11	pin 5
pin A11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27326.
- (l) Reconnect connector DM27334.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) For flap support No. 6, do this task: Outboard Flap Support Aft Fairing Installation, AMM TASK 27-51-18-400-802.
- (7) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-59 TASK 861

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.66
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (8) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

862. Flap Supports No. 6, No. 7 and No. 8 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20602.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 5 and transmission No. 6:
- (a) Remove these access panels to get access to the torque tubes
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 652AB | Inboard Fixed Trailing Edge Panel |
| 652CB | Inboard Fixed Trailing Edge Panel |
| 652EB | Inboard Fixed Trailing Edge Panel |
- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube or torque tube support:
 - a) These are the tasks:
Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.
 - b) These are the tasks:
Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-59 TASKS 861-862

D633W103-ARO

Page 298.67
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (c) Install these access panels
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 652AB | Inboard Fixed Trailing Edge Panel |
| 652CB | Inboard Fixed Trailing Edge Panel |
| 652EB | Inboard Fixed Trailing Edge Panel |

————— END OF TASK —————

863. Flap Support No. 7 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20612.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) For flap support No. 7, do this task: Outboard Flap Support Fairing Removal, AMM TASK 27-51-28-000-801.
- (2) Visually examine these components on flap support No. 7 and replace those that have damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-802,
Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-802.
- (b) Transmission and yoke.
These are the tasks:
Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801,
Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801.
- (c) Flap support mechanism.
These are the tasks:
Outboard Flap Inboard Support Mechanism Removal, AMM TASK 27-51-22-000-802,
Outboard Flap Inboard Support Mechanism - Installation, AMM TASK 27-51-22-400-802.
- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-59 TASKS 862-863

D633W103-ARO

Page 298.68
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Replace the two flap skew sensors M27324 and M27332 at flap support No. 7.
These are the tasks:
Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.
- (4) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 7:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27324 from the flap skew sensor M27324.
- (e) Disconnect the connector DM27332 from the flap skew sensor M27332.
- (f) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27324 at the flap skew sensor, M27324 (WDM 27-59-13):

DM27001AA	DM27324
pin E11	pin 5
pin D11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27332 at the flap skew sensor, M27332 (WDM 27-59-14):

DM27002AA	DM27332
pin E11	pin 5
pin D11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27324.

EFFECTIVITY
ARO ALL

27-59 TASK 863

D633W103-ARO

Page 298.69
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (l) Reconnect connector DM27332.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) For flap support No. 7, do this task: Outboard Flap Support Fairing Installation, AMM TASK 27-51-28-400-801.
- (7) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (8) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

864. Flap Supports No. 7 and No. 8 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20622.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 6 and transmission No. 7:

EFFECTIVITY
ARO ALL

27-59 TASKS 863-864

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.70
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube or torque tube support:

- a) These are the tasks:

Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.

- b) These are the tasks:

Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 2, Test of Flaps Only.

- a) If the MAT EXISTING FAULTS display does not show LATCHED for the
maintenance message, then you corrected the fault.

- (c) If you do not see a broken or disconnected torque tube, then continue.

- (2) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (3) Use the primary system to extend or retract the flaps to another position. To extend or retract
them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM
TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN
CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get
FSEU 2 IN CONTROL.

EFFECTIVITY
ARO ALL

27-59 TASK 864

D633W103-ARO

Page 298.71
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

865. Flap Support No. 8 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20632.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for a broken or disconnected torque tube between transmission No. 7 and transmission No. 8:
- (a) If the flap is retracted, remove these access panels to get access to the torque tubes
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 661CB | Midspan Fixed Trailing Edge Panel |
| 661DB | Midspan Fixed Trailing Edge Panel |
| 661EB | Midspan Fixed Trailing Edge Panel |
- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube, torque tube support or no-back brake:
 - a) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
 - b) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.
 - 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel
 - 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 2, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-59 TASKS 864-865

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.72
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (c) If you do not see a broken torque tube, then continue.
- (2) For flap support No. 8, do this task: Outboard Flap Support Fairing Removal, AMM TASK 27-51-28-000-801.
- (3) Visually examine these components and replace those that have damage:
 - (a) Ballscrew and gimbal.
These are the tasks:
Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801,
Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-801.
 - (b) Transmission and yoke.
These are the tasks:
Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802,
Outboard Flap Outboard Transmission Installation, AMM TASK 27-51-25-400-802.
 - (c) Flap support mechanism.
These are the tasks:
Outboard Flap Outboard Support Mechanism Removal, AMM TASK 27-51-22-000-801,
Outboard Flap Outboard Support Mechanism - Installation, AMM TASK 27-51-22-400-801.
- (4) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) For flap support No. 8, do this task: Outboard Flap Support Fairing Installation, AMM TASK 27-51-28-400-801.
- (6) Replace FSEU 2, M27002.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (7) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.
NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
 - (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (8) Replace the two flap skew sensors M27322 and M27330 at flap support No. 8.

EFFECTIVITY
ARO ALL

27-59 TASK 865

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.73
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (9) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Flaps Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (10) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 8
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27322 from the flap skew sensor M27322.
- (e) Disconnect the connector DM27330 from the flap skew sensor M27330.
- (f) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27322 at the flap skew sensor, M27322 (WDM 27-59-13):

DM27001AA	DM27322
pin B11	pin 5
pin A11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27330 at the flap skew sensor, M27330 (WDM 27-59-14):

DM27002AA	DM27330
pin B11	pin 5
pin A11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Reconnect connector DM27322.
- (l) Reconnect connector DM27330.

EFFECTIVITY
ARO ALL

27-59 TASK 865

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.74
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (11) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (12) Do this check of the wiring between the flap skew sensors on the flap supports No. 7 and No. 8:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (b) Disconnect the connector DM27324 from the flap skew sensor M27324.
- (c) Disconnect the connector DM27332 from the flap skew sensor M27332.
- (d) Disconnect the connector DM27322 from the flap skew sensor M27322.
- (e) Disconnect the connector DM27330 from the flap skew sensor M27330.
- (f) Do a wiring check between these pins of connector DM27324 at the flap skew sensor, M27324 and connector DM27322 at the flap skew sensor, M27322 (WDM 27-59-13):

DM27324	DM27322
pin 2	pin 1
pin 4	pin 3

- (g) Do a wiring check between these pins of connector DM27332 at the flap skew sensor, M27332 and connector DM27330 at the flap skew sensor, M27330 (WDM 27-59-14):

EFFECTIVITY
ARO ALL

27-59 TASK 865

D633W103-ARO

Page 298.75
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27332

pin 2 pin 1
pin 4 pin 3

DM27330

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Reconnect connector DM27322.
- (j) Reconnect connector DM27330.
- (k) Reconnect connector DM27324.
- (l) Reconnect connector DM27332.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (13) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (14) Replace the two flap skew sensors M27323 and M27331 at flap support No. 1.
These are the tasks:

Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,

Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

- (15) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (16) Do this check of the wiring between FSEU 1 and FSEU 2 and the flap skew sensors on the flap support No. 1:

EFFECTIVITY
ARO ALL

27-59 TASK 865

D633W103-ARO

Page 298.76
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
(c) Remove FSEU 2, M27002 from the E4-1 shelf.
(d) Disconnect the connector DM27323 from the flap skew sensor M27323.
(e) Disconnect the connector DM27331 from the flap skew sensor M27331.
(f) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27323 at the flap skew sensor, M27323 (WDM 27-59-11):

DM27001AC	DM27323
pin J11	pin 5
pin K11	pin 6

- (g) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27331 at the flap skew sensor, M27331 (WDM 27-59-14):

DM27002AC	DM27331
pin J11	pin 5
pin K11	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
(i) Re-install FSEU 1, M27001.
(j) Re-install FSEU 2, M27002.
(k) Reconnect connector DM27323.
(l) Reconnect connector DM27331.
(m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-59 TASK 865

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.77
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (17) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows LATCHED for the maintenance message, then continue.
- (18) Do this check of the wiring between the flap skew sensors on the flap supports No. 1 and No. 2:

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (b) Disconnect the connector DM27323 from the flap skew sensor M27323.
- (c) Disconnect the connector DM27331 from the flap skew sensor M27331.
- (d) Disconnect the connector DM27325 from the flap skew sensor M27325.
- (e) Disconnect the connector DM27333 from the flap skew sensor M27333.
- (f) Do a wiring check between these pins of connector DM27325 at the flap skew sensor, M27325 and connector DM27323 at the flap skew sensor, M27323 (WDM 27-59-11):

DM27325	DM27323
pin 2	pin 1
pin 4	pin 3

- (g) Do a wiring check between these pins of connector DM27333 at the flap skew sensor, M27333 and connector DM27331 at the flap skew sensor, M27331 (WDM 27-59-12):

DM27333	DM27331
pin 2	pin 1
pin 4	pin 3

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Reconnect connector DM27325.
- (j) Reconnect connector DM27333.
- (k) Reconnect connector DM27323.
- (l) Reconnect connector DM27331.

EFFECTIVITY
ARO ALL

27-59 TASK 865

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.78
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

- (19) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

866. Flap Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20642.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look for broken or disconnected torque tubes for the flaps:

NOTE: It is likely there are multiple broken or disconnected torque tubes in the flap drive system.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-59 TASKS 865-866

D633W103-ARO

Page 298.79
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) Look at the torque tubes in the main landing gear wheel wells to see if they are broken or disconnected.
- (d) Look at the torque tubes between flap support No. 1 and No. 2.
 - 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- (e) Look at the torque tubes between flap supports No. 2 and No. 3.
 - 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (f) Look at the torque tubes between flap supports No. 3 and No. 4.
 - 1) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- (g) Look at the torque tubes between flap supports No. 5 and No. 6.
 - 1) Remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

- (h) Look at the torque tubes between flap supports No. 6 and No. 7.
 - 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-59 TASK 866

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.80
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- (i) Look at the torque tubes between flap support No. 7 and No. 8.
- 1) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- (j) If you see a broken or disconnected torque tube, replace the applicable torque tube, torque tube support or no-back brake:
- 1) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
- 2) These are the tasks:
Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.
- 3) These are the tasks:
Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.
- 4) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-802.
- 5) These are the tasks:
Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.
- (k) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
- (l) Install the applicable access panels:

- 1) Install these access panels between flap supports No. 1 and No. 2:

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel

- 2) Install these access panels between flap supports No. 2 and 3:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel

EFFECTIVITY
ARO ALL

27-59 TASK 866

D633W103-ARO

Page 298.81
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 3) Install these access panels between flap supports No. 3 and No. 4:

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

- 4) Install these access panels between flap supports No. 5 and No. 6:

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel

- 5) Install these access panels between flap supports No. 6 and No. 7:

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- 6) Install these access panels between flap supports No. 7 and No. 8:

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- (m) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

- 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (n) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

- (o) If you do not see a broken or disconnected torque tube, then continue.

- (2) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

EFFECTIVITY
ARO ALL

27-59 TASK 866

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.82
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (3) Use the primary system to extend or retract the flaps to another position. To extend or retract them, do this task: Trailing Edge Flap System Operation With Primary Control, AMM TASK 27-51-00-860-801.

NOTE: Use the HIGH LIFT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

867. Flap Skew Sensors 1 and 8 Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25372.

B. Initial Evaluation

- (1) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only:
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the HIGH LIFT Eicas maintenance page to see which flap skew sensor indication does not agree with the other indications:
 - (a) Look at the indications OUTBD FLAP L1 B and R8 B to see which does not agree with L1 A and R8 A.
 - (b) If the indication OUTBD FLAP R8 B does not agree with the other indications, look for problems at flap support No. 8 on the right wing first.
 - (c) If the indication OUTBD FLAP L1 B does not agree with the other indications, look for problems at flap support No. 1 on the left wing first.
- (2) Replace the flap skew sensor R8 B, M27330 on flap support No. 8.
These are the tasks:
Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.
 - (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the flap skew sensor L1 B, M27331 on flap support No. 1.
These are the tasks:
Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.

EFFECTIVITY
ARO ALL

27-59 TASKS 866-867

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.83
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (5) Do a wiring check between FSEU 2, M27002 and flap skew sensor R8 B, M27330:
- (a) Disconnect the electrical connector DM27330 from the flap skew sensor R8 B, M27330.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AA at the E4-1 shelf and connector DM27330 at the flap skew sensor R8 B, M27330 (WDM 27-59-14):

DM27002AA	DM27330
pin B11	pin 5
pin A11	pin 6

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27330.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between FSEU 2, M27002 and flap skew sensor L1 B, M27331.
- (a) Disconnect electrical connector DM27331 from the flap skew sensor L1 B, M27331.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27331 at the flap skew sensor L1 B, M27331 (WDM 27-59-12):

DM27002AC	DM27331
pin J11	pin 5
pin K11	pin 6

EFFECTIVITY
ARO ALL

27-59 TASK 867

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.84
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27331.
 - 4) Re-connect connector DM27330.
 - 5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (7) Do a wiring check between flap skew sensor R8 B, M27330 and flap skew sensor R7 B, M27332:
 - (a) Disconnect the electrical connector DM27332 from the flap skew sensor R7 B, M27332.
 - (b) Do a wiring check between these pins of connector DM27332 at the flap skew sensor R7 B, M27332 and connector DM27330 at the flap skew sensor R8 B, M27330 (WDM 27-59-14):

DM27332	DM27330
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27330.
 - 4) Re-connect connector DM27332.
 - 5) Re-connect connector DM27331.
 - 6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 7) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-59 TASK 867

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.85
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (8) Re-connect connector DM27330.
- (9) Re-connect connector DM27332.
- (10) Do a wiring check between flap skew sensor L1 B, M27331 and flap skew sensor L2 B, M27333:
 - (a) Disconnect the electrical connector DM27333 from the flap skew sensor L2 B, M27333.
 - (b) Do a wiring check between these pins of connector DM27333 at the flap skew sensor L2 B, M27333 and connector DM27331 at the flap skew sensor L1 B, M27331 (WDM 27-59-12):

DM27333	DM27331
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27333.
 - 4) Re-connect connector DM27331.
 - 5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DM27331.
- (13) Re-connect connector DM27333.
- (14) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (15) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-59 TASK 867

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.86
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (16) Look for a broken or disconnected torque tube between transmission No. 1 and transmission No. 2:
- (a) If the flap is retracted, remove these access panels to get access to the torque tubes
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 561CB | Midspan Fixed Trailing Edge Panel |
| 561DB | Midspan Fixed Trailing Edge Panel |
| 561EB | Midspan Fixed Trailing Edge Panel |
- and .
- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube, torque tube support or no-back brake:
 - a) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
 - b) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.
 - 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
561CB	Midspan Fixed Trailing Edge Panel
561DB	Midspan Fixed Trailing Edge Panel
561EB	Midspan Fixed Trailing Edge Panel
 - 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then
you corrected the fault.
- (c) If you do not see a broken torque tube, then continue.
- (17) For flap support No. 1, do this task: Outboard Flap Support Fairing Removal, AMM
TASK 27-51-28-000-801.
- (18) Visually examine these components on flap support No. 1 and replace those that have
damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801,
Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-26-400-801.
- (b) Transmission and yoke.
These are the tasks:
Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802,

EFFECTIVITY
ARO ALL

27-59 TASK 867

D633W103-ARO

Page 298.87
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Outboard Flap Outboard Transmission Installation, AMM TASK 27-51-25-400-802.

- (c) Flap support mechanism.

These are the tasks:

Outboard Flap Outboard Support Mechanism Removal, AMM TASK 27-51-22-000-801,

Outboard Flap Outboard Support Mechanism - Installation, AMM
TASK 27-51-22-400-801.

- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (e) If you did not replace a component, then continue.

- (19) Look for a broken or disconnected torque tube between transmission No. 7 and transmission No. 8:

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:

- 1) Replace the applicable torque tube, torque tube support or no-back brake:

- a) These are the tasks:

Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,

Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.

- b) These are the tasks:

Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,

Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
661CB	Midspan Fixed Trailing Edge Panel
661DB	Midspan Fixed Trailing Edge Panel
661EB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (c) If you do not see a broken torque tube, then continue.

- (20) For flap support No. 8, do this task: Outboard Flap Support Fairing Removal, AMM
TASK 27-51-28-000-801.

EFFECTIVITY
ARO ALL

27-59 TASK 867

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.88
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (21) Visually examine these components on flap support No. 8 and replace those that have damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Outboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-801,
Outboard Flap Outboard Ballscrew and Gimbal Installation, AMM
TASK 27-51-26-400-801.
 - (b) Transmission and yoke.
These are the tasks:
Outboard Flap Outboard Transmission Removal, AMM TASK 27-51-25-000-802,
Outboard Flap Outboard Transmission Installation, AMM TASK 27-51-25-400-802.
 - (c) Flap support mechanism.
These are the tasks:
Outboard Flap Outboard Support Mechanism Removal, AMM TASK 27-51-22-000-801,
Outboard Flap Outboard Support Mechanism - Installation, AMM
TASK 27-51-22-400-801.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System,
System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you
corrected the fault.
- (22) For flap supports No. 1 and No. 8, do this task: Outboard Flap Support Fairing Installation,
AMM TASK 27-51-28-400-801.

————— **END OF TASK** —————

868. Flap Skew Sensors 2 and 7 Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25382.

B. Initial Evaluation

- (1) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU
2, Test of Flaps Only:
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation
Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an
intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the HIGH LIFT Eicas maintenance page to see which flap skew sensor indication does
not agree with the other indications:
- (a) Look at the indications OUTBD FLAP L2 B and R7 B to see which does not agree with L2
A and R7 A.
 - (b) If the indication OUTBD FLAP R7 B does not agree with the other indications, look for
problems at flap support No. 7 on the right wing first.
 - (c) If the indication OUTBD FLAP L2 B does not agree with the other indications, look for
problems at flap support No. 2 on the left wing first.

EFFECTIVITY
ARO ALL

27-59 TASKS 867-868

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.89
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) Replace the flap skew sensor R7 B, M27332 on flap support No. 7.
- These are the tasks:
- Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.
- (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the flap skew sensor L2 B, M27333 on flap support No. 2.
- These are the tasks:
- Outboard Flap Skew Sensor - Removal, AMM TASK 27-59-01-000-807-002,
Outboard Flap Skew Sensor - Installation, AMM TASK 27-59-01-400-807-002.
- (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (5) Do a wiring check between FSEU 2, M27002 and flap skew sensor R7 B, M27332:
- (a) Disconnect the electrical connector DM27332 from the flap skew sensor R7 B, M27332.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27332 at the flap skew sensor R7 B, M27332 (WDM 27-59-14):

DM27002AA	DM27332
pin E11	pin 5
pin D11	pin 6

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27332.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-59 TASK 868

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.90
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 5) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between FSEU 2, M27002 and flap skew sensor L2 B, M27333.
- (a) Disconnect electrical connector DM27333 from the flap skew sensor L2 B, M27333.
- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27333 at the flap skew sensor L2 B, M27333 (WDM 27-59-12):

DM27001AC	DM27325
pin F11	pin 5
pin G11	pin 6

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27333.
 - 4) Re-connect connector DM27332.
 - 5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (7) Do a wiring check between flap skew sensor R7 B, M27332 and flap skew sensor R6 B, M27334:
- (a) Disconnect the electrical connector DM27334 from the flap skew sensor R6 B, M27334.
- (b) Do a wiring check between these pins of connector DM27334 at the flap skew sensor R6 B, M27334 and connector DM27332 at the flap skew sensor R7 B, M27332 (WDM 27-59-14):

DM27334	DM27332
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.

EFFECTIVITY
ARO ALL

27-59 TASK 868

D633W103-ARO

Page 298.91
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 3) Re-connect connector DM27332.
- 4) Re-connect connector DM27334.
- 5) Re-connect connector DM27333.
- 6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 7) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (d) If you do not find a problem with the wiring, then continue.
- (8) Re-connect connector DM27332.
- (9) Re-connect connector DM27334.
- (10) Do a wiring check between flap skew sensor L2 B, M27333 and flap skew sensor L3 B, M27335:
 - (a) Disconnect the electrical connector DM27335 from the flap skew sensor L3 B, M27335.
 - (b) Do a wiring check between these pins of connector DM27335 at the flap skew sensor L3 B, M27335 and connector DM27333 at the flap skew sensor L2 B, M27333 (WDM 27-59-12):

DM27335	DM27333
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27335.
 - 4) Re-connect connector DM27333.
 - 5) Remove the safety tags and close these circuit breakers:
- Right Power Management Panel, P210**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|-------------|
| F | 21 | C27514 | SNSR EXC 2 |
| K | 4 | C27602 | FSEU 2 |
- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (d) If you do not find a problem with the wiring, then continue.
 - (11) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-59 TASK 868

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.92
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (12) Re-connect connector DM27335.
- (13) Re-connect connector DM27333.
- (14) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (15) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (16) Look for a broken or disconnected torque tube between transmission No. 2 and transmission No. 3:

- (a) If the flap is retracted, remove these access panels to get access to the torque tubes

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- (b) If you see a broken or disconnected torque tube, do these steps:
 - 1) Replace the applicable torque tube or torque tube support:
 - a) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
 - b) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,
Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
552JB	Fixed Trailing Edge Panel
552LB	Outboard Fixed Trailing Edge Panel
561AB	Midspan Fixed Trailing Edge Panel
561BB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 2, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-59 TASK 868

D633W103-ARO

Page 298.93
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not see a broken torque tube, then continue.
- (17) For flap support No. 2, do this task: Outboard Flap Support Fairing Removal, AMM TASK 27-51-28-000-801.
- (18) Visually examine these components on flap support No. 2 and replace those that have damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-802,
Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-802.
- (b) Transmission and yoke.
These are the tasks:
Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801,
Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801.
- (c) Flap support mechanism.
These are the tasks:
Outboard Flap Inboard Support Mechanism Removal, AMM TASK 27-51-22-000-802,
Outboard Flap Inboard Support Mechanism - Installation, AMM TASK 27-51-22-400-802.
- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you did not replace a component, then continue.
- (19) Look for a broken or disconnected torque tube between transmission No. 6 and transmission No. 7:
- (a) If the flap is retracted, remove these access panels to get access to the torque tubes
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------------------|
| 652HB | Inboard Fixed Trailing Edge Panel |
| 652JB | Fixed Trailing Edge Panel |
| 652LB | Outboard Fixed Trailing Edge Panel |
| 661AB | Midspan Fixed Trailing Edge Panel |
| 661BB | Midspan Fixed Trailing Edge Panel |
- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube or torque tube support:
- a) These are the tasks:
Outboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-801,
Outboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-801.
- b) These are the tasks:
Outboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-802,

EFFECTIVITY
ARO ALL

27-59 TASK 868

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.94
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Outboard Wing Torque Tube Support Installation, AMM
TASK 27-51-39-400-802.

- 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM
TASK 27-51-00-820-801.

- 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
652JB	Fixed Trailing Edge Panel
652LB	Outboard Fixed Trailing Edge Panel
661AB	Midspan Fixed Trailing Edge Panel
661BB	Midspan Fixed Trailing Edge Panel

- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System
Test-FSEU 2, Test of Flaps Only.

- a) If the maintenance message does not show on the ground test display, then
you corrected the fault.

- (c) If you do not see a broken torque tube, then continue.

- (20) For flap support No. 7, do this task: Outboard Flap Support Fairing Removal, AMM
TASK 27-51-28-000-801.

- (21) Visually examine these components on flap support No. 7 and replace those that have
damage:

- (a) Ballscrew and gimbal.

These are the tasks:

Outboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-26-000-802,

Outboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-26-400-802.

- (b) Transmission and yoke.

These are the tasks:

Outboard Flap Inboard Transmission Removal, AMM TASK 27-51-25-000-801,

Outboard Flap Inboard Transmission Installation, AMM TASK 27-51-25-400-801.

- (c) Flap support mechanism.

These are the tasks:

Outboard Flap Inboard Support Mechanism Removal, AMM TASK 27-51-22-000-802,

Outboard Flap Inboard Support Mechanism - Installation, AMM TASK 27-51-22-400-802.

- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System,
System Test, Primary System Test-FSEU 2, Test of Flaps Only.

- 1) If the maintenance message does not show on the ground test display, then you
corrected the fault.

- (22) For flap supports No. 2 and No. 7, do this task: Outboard Flap Support Fairing Installation,
AMM TASK 27-51-28-400-801.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-59 TASK 868

D633W103-ARO

Page 298.95
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

869. Flap Skew Sensors 3 and 6 Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25392.

B. Initial Evaluation

- (1) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only:
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the HIGH LIFT Eicas maintenance page to see which flap skew sensor indication does not agree with the other indications:
 - (a) Look at the indications OUTBD FLAP L3 B and R6 B to see which do not agree with L3 A and R6 A.
 - (b) If the indication OUTBD FLAP R6 B does not agree with the other indications, look for problems at flap support No. 6 on the right wing first.
 - (c) If the indication OUTBD FLAP L3 B does not agree with the other indications, look for problems at flap support No. 3 on the left wing first.
- (2) Replace the flap skew sensor R6 B, M27334 on flap support No. 6.

These are the tasks:

Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,

Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.

- (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the flap skew sensor L3 B, M27335 on flap support No. 3.

These are the tasks:

Inboard Flap Outboard Skew Sensor - Removal, AMM TASK 27-59-01-000-808-002,

Inboard Flap Outboard Skew Sensor - Installation, AMM TASK 27-59-01-400-808-002.

- (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-59 TASK 869

D633W103-ARO

Page 298.96
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (5) Do a wiring check between FSEU 2, M27002 and flap skew sensor R6 B, M27334:
- (a) Disconnect the electrical connector DM27334 from the flap skew sensor R6 B, M27334.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27334 at the flap skew sensor R6 B, M27334 (WDM 27-59-14):

DM27002AA		DM27334	
pin H11	.....	pin 5	
pin G11	.....	pin 6	

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27334.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between FSEU 2, M27002 and flap skew sensor L3 B, M27335.
- (a) Disconnect electrical connector DM27335 from the flap skew sensor L3 B, M27335.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27335 at the flap skew sensor L3 B, M27335 (WDM 27-59-12):

DM27002AC		DM27335	
pin C11	.....	pin 5	
pin D11	.....	pin 6	

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27335.
 - 4) Re-connect connector DM27334.
 - 5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

EFFECTIVITY
ARO ALL

27-59 TASK 869

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.97
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	4	C27602	FSEU 2

- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (7) Do a wiring check between flap skew sensor R5 B, M27336 and flap skew sensor R6 B, M27334:
- (a) Disconnect the electrical connector DM27336 from the flap skew sensor R5 B, M27336.
- (b) Do a wiring check between these pins of connector DM27336 at the flap skew sensor R5 B, M27336 and connector DM27334 at the flap skew sensor R6 B, M27334 (WDM 27-59-14):

DM27336	DM27334
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27336.
 - 4) Re-connect connector DM27334.
 - 5) Re-connect connector DM27335.
 - 6) Remove the safety tags and close these circuit breakers:
- ### Right Power Management Panel, P210
<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
- 7) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (8) Re-connect connector DM27336.
- (9) Re-connect connector DM27334.
- (10) Do a wiring check between flap skew sensor L3 B, M27335 and flap skew sensor L4 B, M27337:
- (a) Disconnect the electrical connector DM27337 from the flap skew sensor L4 B, M27337.

EFFECTIVITY
ARO ALL

27-59 TASK 869

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.98
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Do a wiring check between these pins of connector DM27337 at the flap skew sensor L4 B, M27337 and connector DM27335 at the flap skew sensor L3 B, M27335 (WDM 27-59-12):

DM27337	DM27335
pin 2	pin 1
pin 4	pin 3

- (c) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27337.
 - 4) Re-connect connector DM27335.
 - 5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DM27337.
- (13) Re-connect connector DM27335.
- (14) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (15) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (16) Look for a broken or disconnected torque tube between transmission No. 3 and transmission No. 4:
- (a) If the flap is retracted, remove these access panels to get access to the torque tubes,
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 552AB | Inboard Fixed Trailing Edge Panel |

EFFECTIVITY
ARO ALL

27-59 TASK 869

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.99
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

(b) If you see a broken or disconnected torque tube, do these steps:

1) Replace the applicable torque tube or torque tube support:

a) These are the tasks:

Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.

b) These are the tasks:

Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.

2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.

3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
552AB	Inboard Fixed Trailing Edge Panel
552CB	Inboard Fixed Trailing Edge Panel
552EB	Inboard Fixed Trailing Edge Panel

4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

a) If the maintenance message does not show on the ground test display, then you corrected the fault.

(c) If you do not see a broken torque tube, then continue.

(17) For flap support No. 3, do this task: Outboard Flap Support Aft Fairing Removal, AMM TASK 27-51-18-000-802.

(18) Visually examine these components on flap support No. 3 and replace those that have damage:

(a) Ballscrew and gimbal.

These are the tasks:

Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-802,
Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-802.

(b) Transmission and yoke.

These are the tasks:

Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802,
Inboard Flap Outboard Transmission Installation, AMM TASK 27-51-15-400-802.

(c) Flap support mechanism.

These are the tasks:

Pivot Link, Fairing Links and Spring Removal, AMM TASK 27-51-14-020-801,
Drive Arm Removal, AMM TASK 27-51-14-020-805.

EFFECTIVITY
ARO ALL

27-59 TASK 869

D633W103-ARO

Page 298.100
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you did not replace a component, then continue.
- (19) Look for a broken or disconnected torque tube between transmission No. 5 and transmission No. 6:
- (a) If the flap is retracted, remove these access panels to get access to the torque tubes,
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 652AB | Inboard Fixed Trailing Edge Panel |
| 652CB | Inboard Fixed Trailing Edge Panel |
| 652EB | Inboard Fixed Trailing Edge Panel |
- (b) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube or torque tube support:
 - a) These are the tasks:
Inboard Wing Flap Torque Tube Removal, AMM TASK 27-51-38-000-802,
Inboard Wing Flap Torque Tube Installation, AMM TASK 27-51-38-400-802.
 - b) These are the tasks:
Inboard Wing Torque Tube Support Removal, AMM TASK 27-51-39-000-801,
Inboard Wing Torque Tube Support Installation, AMM TASK 27-51-39-400-801.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Install these access panels if you removed them,

<u>Number</u>	<u>Name/Location</u>
652AB	Inboard Fixed Trailing Edge Panel
652CB	Inboard Fixed Trailing Edge Panel
652EB	Inboard Fixed Trailing Edge Panel
 - 4) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not see a broken torque tube, then continue.
- (20) For flap support No. 6, do this task: Outboard Flap Support Aft Fairing Removal, AMM TASK 27-51-18-000-802.
- (21) Visually examine these components on flap support No. 6 and replace those that have damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Outboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-802,
Inboard Flap Outboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-802.
- (b) Transmission and yoke.

EFFECTIVITY
ARO ALL

27-59 TASK 869

D633W103-ARO

Page 298.101
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Inboard Flap Outboard Transmission Removal, AMM TASK 27-51-15-000-802,
Inboard Flap Outboard Transmission Installation, AMM TASK 27-51-15-400-802.

- (c) Flap support mechanism.

These are the tasks:

Pivot Link, Fairing Links and Spring Removal, AMM TASK 27-51-14-020-801,
Drive Arm Removal, AMM TASK 27-51-14-020-805.

- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (22) For flap supports No. 3 and No. 6, do this task: Outboard Flap Support Aft Fairing Installation, AMM TASK 27-51-18-400-802.

————— **END OF TASK** —————

870. Flap Skew Sensors 4 and 5 Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25402.

B. Initial Evaluation

- (1) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only:
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Look at the HIGH LIFT Eicas maintenance page to see which flap skew sensor indication does not agree with the other indications:
- (a) Look at the indications OUTBD FLAP L4 B and R5 B to see which does not agree with L4 A and R5 A.
- (b) If the indication OUTBD FLAP R5 B does not agree with the other indications, look for problems at flap support No. 5 on the right wing first.
- (c) If the indication OUTBD FLAP L4 B does not agree with the other indications, look for problems at flap support No. 4 on the left wing first.
- (2) Replace the flap skew sensor R5 B, M27336 on flap support No. 5.

These are the tasks:

Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,
Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.

- (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-59 TASKS 869-870

D633W103-ARO

Page 298.102
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Replace the flap skew sensor L4 B, M27337 on flap support No. 4.

These are the tasks:

Inboard Flap Inboard Skew Sensor - Removal, AMM TASK 27-59-01-000-809-002,

Inboard Flap Inboard Skew Sensor - Installation, AMM TASK 27-59-01-400-809-002.

- (a) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (5) Do a wiring check between FSEU 2, M27002 and flap skew sensor R5 B, M27336:
- (a) Disconnect the electrical connector DM27336 from the flap skew sensor R5 B, M27336.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27336 at the flap skew sensor R5 B, M27336 (WDM 27-58-12) and (WDM 27-59-14):

DM27002AA	DM27336
pin K10	pin 5
pin K11	pin 6
pin A3	pin 1
pin B3	pin 3

- (d) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27336.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (6) Do a wiring check between FSEU 2, M27002 and flap skew sensor L4 B, M27337.

EFFECTIVITY
ARO ALL

27-59 TASK 870

D633W103-ARO

Page 298.103
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Disconnect electrical connector DM27337 from the flap skew sensor L4 B, M27337.
- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27337 at the flap skew sensor L4 B, M27337 (WDM 27-58-12) and (WDM 27-59-12):

DM27002AC	DM27337
pin A10	pin 5
pin A11	pin 6
pin K3	pin 1
pin J3	pin 3

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27337.
 - 4) Re-connect connector DM27336.
 - 5) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (6) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (e) If you do not find a problem with the wiring, then continue.
- (7) Re-connect connector DM27337.
- (8) Re-connect connector DM27336.
- (9) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (10) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (11) Do this ground test of the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-59 TASK 870

D633W103-ARO

Page 298.104
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (12) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (13) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (14) Look for a broken or disconnected torque tube between transmission No. 4 and the flap Power Drive Unit (PDU) in the left wheel well.
- (a) If you see a broken or disconnected torque tube, do these steps:
- 1) Replace the applicable torque tube.
These are the tasks:
Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not see a broken torque tube, then continue.
- (15) Visually examine these components on flap support No. 4 and replace those that have damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-801,
Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-801.
- (b) Transmission and yoke.
These are the tasks:
Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801,
Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801.
- (c) Flap support mechanism.
These are the tasks:
Bellcrank and Drive Links Removal, AMM TASK 27-51-13-000-801,
Bellcrank and Drive Links Installation, AMM TASK 27-51-13-400-804.
- (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.

EFFECTIVITY
ARO ALL

27-59 TASK 870

D633W103-ARO

Page 298.105
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (e) If you did not replace a component, then continue.
- (16) Look for a broken or disconnected torque tube between transmission No. 5 and the flap PDU in the right wheel well.
- (a) If you see a broken or disconnected torque tube, do these steps:
 - 1) Replace the applicable torque tube.
These are the tasks:
Wheel Well Flap Torque Tube Removal, AMM TASK 27-51-38-000-803,
Wheel Well Flap Torque Tube Installation, AMM TASK 27-51-38-400-803.
 - 2) Do this task: Trailing Edge Flap Drive System Adjustment, AMM TASK 27-51-00-820-801.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If you do not see a broken torque tube, then continue.
- (17) Visually examine these components on flap support No. 5 and replace those that have damage:
- (a) Ballscrew and gimbal.
These are the tasks:
Inboard Flap Inboard Ballscrew and Gimbal Removal, AMM TASK 27-51-16-000-801,
Inboard Flap Inboard Ballscrew and Gimbal Installation, AMM TASK 27-51-16-400-801.
 - (b) Transmission and yoke.
These are the tasks:
Inboard Flap Inboard Transmission Removal, AMM TASK 27-51-15-000-801,
Inboard Flap Inboard Transmission Installation, AMM TASK 27-51-15-400-801.
 - (c) Flap support mechanism.
These are the tasks:
Bellcrank and Drive Links Removal, AMM TASK 27-51-13-000-801,
Bellcrank and Drive Links Installation, AMM TASK 27-51-13-400-804.
 - (d) If you replaced a component above, do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Flaps Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (e) If you did not replace a component, then continue.

EFFECTIVITY
ARO ALL

27-59 TASK 870

D633W103-ARO

Page 298.106
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(18) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-59 TASK 870

D633W103-ARO

Page 298.107
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

801. Spoiler Power Control Unit (1) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10500.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-1 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-1, M27116
- (2) Spoiler PCU-1 Electro-Hydraulic Servo Valve (EHSV)
- (3) Actuator Control Electronics (ACE) (Center), M27321
- (4) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

E. Related Data

- (1) WDM 27-11-12
- (2) WDM 27-61-15

F. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then look for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM Tasks.

ARO 005-999; ARO 001-004 POST SB 777-27-0111

- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Check the Main Hydraulic System Pressure.
 - 1) If the pressure is less than 1000 psi, this can be a normal condition caused by the PFC software that continuously monitors the spoiler operation and Hydraulic Pressure information.
 - (b) To determine if it is a nuisance fault, pressurize the applicable Hydraulic System and check if the message clears or changes to an inactive mode.

EFFECTIVITY
ARO ALL

27-61 TASK 801

D633W103-ARO

Page 201
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

ARO 005-999; ARO 001-004 POST SB 777-27-0111 (Continued)

- 1) If the fault shows LATCHED with the Hydraulic System pressurized, then continue.

ARO ALL

- (4) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1,7,8,14 System.
 - (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

G. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-1:
 - (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #1 position during the task.
 - 1) If the Spoiler #1 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do these tasks to replace the Spoiler PCU-1:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the Spoiler #1 position readout is within limits at each AMM Task step, then continue.
- (2) Do this check of the Spoiler PCU-1 Electro-Hydraulic Servo Valve (EHSV):
 - (a) Disconnect connector DM27116 from the Spoiler PCU-1.
 - (b) Visually inspect the connector for damaged or contaminated pins.
 - 1) If you find damage, replace the Spoiler PCU-1. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find contamination, clean the connector (SWPM 20-60-01), then continue.
 - 3) If you do not find damage or contamination, then continue.

EFFECTIVITY
ARO ALL

27-61 TASK 801

D633W103-ARO

Page 202
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Do this task for the Spoiler PCU-1: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For Flight Control PCU Wiring, a short is considered a resistance of 50000 Ohms or less.

NOTE: This task includes the Resistance Check and Low Voltage Insulation Resistance Check.

- 1) If a wiring problem is found in either pin 3 or 10, do this task to remove the EHSV: Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801.
 - a) Inspect the Spoiler PCU-1 EHSV electrical connector for contaminated or damaged pins.
 - <1> If you find damage or contamination, do these steps:
 - <a> Do this task to re-install the removed EHSV:
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Do these tasks to replace the Spoiler PCU-1:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - I. Do the Repair Confirmation at the end of this task.
 - <2> If you find no damage or contamination on the Spoiler PCU-1 EHSV connector, then replace the EHSV. These are the tasks:
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - <a> Do this task for the Spoiler PCU-1: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
 - I. If no wiring problems are found, then do the Repair Confirmation at the end of this task.
 - II. If a wiring problem is found, do these tasks to re-install the original EHSV and replace the Spoiler PCU-1:
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - III. Do the Repair Confirmation at the end of this task.

EFFECTIVITY
ARO ALL

27-61 TASK 801

D633W103-ARO

Page 203
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) If a wiring problem is detected for other pins except 3 and 10, replace the Spoiler PCU-1. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
- 3) If no wiring problems are found, then continue.
- (3) Do this check of the Command Wiring and Feedback Wiring:
 - (a) Remove the Center Actuator Control Electronics (ACE-C), M27321, from the E2-5 shelf. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Do a wiring check between the ACE-C and the Spoiler PCU-1 as follows (WDM 27-61-15):

NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

ACE-C		SPOILER PCU-1
DM27321AA		DM27116
pin A9	.....	pin 5
pin C9	.....	pin 1
pin B9	.....	pin 6
pin C7	.....	pin 3
pin C8	.....	pin 10
pin A7	.....	pin 7
pin A8	.....	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27116 to the Spoiler PCU-1.
 - 3) Re-install the ACE-C, M27321. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do the Repair Confirmation at the end of this task.
- (d) If you do not find a problem with the wiring, connect connector DM27116 to the Spoiler PCU-1, then continue.
- (4) Install a new ACE-C, M27321. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-61 TASK 801

D633W103-ARO

Page 204
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

802. Spoiler Power Control Unit (2) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10501.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-2 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-2, M27117
- (2) Spoiler PCU-2 EHSV
- (3) ACE (Left 1), M27121
- (4) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

E. Related Data

- (1) WDM 27-11-13
- (2) WDM 27-61-11

F. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then look for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM Tasks.

EFFECTIVITY
ARO ALL

27-61 TASKS 801-802

D633W103-ARO

Page 205
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

ARO 005-999; ARO 001-004 POST SB 777-27-0111

- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Check the Main Hydraulic System Pressure.
 - 1) If the pressure is less than 1000 psi, this can be a normal condition caused by the PFC software that continuously monitors the spoiler operation and Hydraulic Pressure information.
 - (b) To determine if it is a nuisance fault, pressurize the applicable Hydraulic System and check if the message clears or changes to an inactive mode.
 - 1) If the fault shows LATCHED with the Hydraulic System pressurized, then continue.

ARO ALL

- (4) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 2, 13 System.
 - (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

G. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-2:
 - (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #2 position during the task.
 - 1) If the Spoiler #2 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do these tasks to replace the Spoiler PCU-2:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the Spoiler #2 position readout is within limits at each AMM Task step, then continue.
- (2) Do this check of the Spoiler PCU-2 Electro-Hydraulic Servo Valve (EHSV):
 - (a) Disconnect connector DM27117 from the Spoiler PCU-2.
 - (b) Visually inspect the connector for damaged or contaminated pins.
 - 1) If you find damage, replace the Spoiler PCU-2. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find contamination, clean the connector (SWPM 20-60-01), then continue.

EFFECTIVITY
ARO ALL

27-61 TASK 802

D633W103-ARO

Page 206
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If you do not find damage or contamination, then continue.
- (c) Do this task for the Spoiler PCU-2: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- NOTE: For Flight Control PCU Wiring, a short is considered a resistance of 50000 Ohms or less.
- NOTE: This task includes the Resistance Check and Low Voltage Insulation Resistance Check.
- 1) If a wiring problem is found in either pin 3 or 10, do this task to remove the EHSV: Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801.
- a) Inspect the Spoiler PCU-2 EHSV electrical connector for contaminated or damaged pins.
- <1> If you find damage or contamination, do these steps:
- <a> Do this task to re-install the removed EHSV:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- Do these tasks to replace the Spoiler PCU-2:
- Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
- I. Do the Repair Confirmation at the end of this task.
- <2> If you find no damage or contamination on the Spoiler PCU-2 EHSV connector, then replace the EHSV. These are the tasks:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- <a> Do this task for the Spoiler PCU-2: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- I. If no wiring problems are found, then do the Repair Confirmation at the end of this task.
- II. If a wiring problem is found, do these tasks to re-install the original EHSV and replace the Spoiler PCU-2:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

EFFECTIVITY
ARO ALL

27-61 TASK 802

D633W103-ARO

Page 207
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

III. Do the Repair Confirmation at the end of this task.

- 2) If a wiring problem is detected for other pins except 3 and 10, replace the Spoiler PCU-2. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If no wiring problems are found, then continue.
- (3) Do this check of the Command Wiring and Feedback Wiring:
- (a) Remove the ACE-L1, M27121, from the E1-5 shelf. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Do a wiring check between the ACE-L1 and the Spoiler PCU-2 as follows (WDM 27-61-11):

NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

ACE-L1	SPOILER PCU-2
DM27121AC	DM27117
pin A9	pin 5
pin C9	pin 1
pin B9	pin 6
pin C7	pin 3
pin C8	pin 10
pin A7	pin 7
pin A8	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27117 to the Spoiler PCU-2.
 - 3) Re-install the ACE-L1, M27121. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do the Repair Confirmation at the end of this task.
 - (d) If you do not find a problem with the wiring, connect connector DM27117 to the Spoiler PCU-2, then continue.
- (4) Install a new ACE-L1, M27121. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 2, 13 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-61 TASK 802

D633W103-ARO

Page 208
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

803. Spoiler Power Control Unit (3) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10502.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-3 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-3, M27118
- (2) Spoiler PCU-3 EHSV
- (3) ACE (Right), M27221
- (4) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

E. Related Data

- (1) WDM 27-11-14
- (2) WDM 27-61-17

F. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then look for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM Tasks.

EFFECTIVITY
ARO ALL

27-61 TASKS 802-803

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 209
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

ARO 005-999; ARO 001-004 POST SB 777-27-0111

- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Check the Main Hydraulic System Pressure.
 - 1) If the pressure is less than 1000 psi, this can be a normal condition caused by the PFC software that continuously monitors the spoiler operation and Hydraulic Pressure information.
 - (b) To determine if it is a nuisance fault, pressurize the applicable Hydraulic System and check if the message clears or changes to an inactive mode.
 - 1) If the fault shows LATCHED with the Hydraulic System pressurized, then continue.

ARO ALL

- (4) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
- (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

G. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-3:
- (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #3 position during the task.
 - 1) If the Spoiler #3 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do these tasks to replace the Spoiler PCU-3:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the Spoiler #3 position readout is within limits at each AMM Task step, then continue.
- (2) Do this check of the Spoiler PCU-3 Electro-Hydraulic Servo Valve (EHSV):
- (a) Disconnect connector DM27118 from the Spoiler PCU-3.
 - (b) Visually inspect the connector for damaged or contaminated pins.
 - 1) If you find damage, replace the Spoiler PCU-3. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find contamination, clean the connector (SWPM 20-60-01), then continue.

EFFECTIVITY
ARO ALL

27-61 TASK 803

D633W103-ARO

Page 210
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If you do not find damage or contamination, then continue.
- (c) Do this task for the Spoiler PCU-3: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- NOTE: For Flight Control PCU Wiring, a short is considered a resistance of 50000 Ohms or less.
- NOTE: This task includes the Resistance Check and Low Voltage Insulation Resistance Check.
- 1) If a wiring problem is found in either pin 3 or 10, do this task to remove the EHSV: Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801.
- a) Inspect the Spoiler PCU-3 EHSV electrical connector for contaminated or damaged pins.
- <1> If you find damage or contamination, do these steps:
- <a> Do this task to re-install the removed EHSV:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- Do these tasks to replace the Spoiler PCU-3:
- Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
- I. Do the Repair Confirmation at the end of this task.
- <2> If you find no damage or contamination on the Spoiler PCU-3 EHSV connector, then replace the EHSV. These are the tasks:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- <a> Do this task for the Spoiler PCU-3: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- I. If no wiring problems are found, then do the Repair Confirmation at the end of this task.
- II. If a wiring problem is found, do these tasks to re-install the original EHSV and replace the Spoiler PCU-3:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

EFFECTIVITY
ARO ALL

27-61 TASK 803

D633W103-ARO

Page 211
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

III. Do the Repair Confirmation at the end of this task.

- 2) If a wiring problem is detected for other pins except 3 and 10, replace the Spoiler PCU-3. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If no wiring problems are found, then continue.
- (3) Do this check of the Command Wiring and Feedback Wiring:
- (a) Remove the Right Actuator Control Electronics (ACE-R), M27221, from the E5-2 shelf. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Do a wiring check between the ACE-R and the Spoiler PCU-3 as follows (WDM 27-61-17):
- NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

ACE-R	SPOILER PCU-3
DM27221AC	DM27118
pin A9	pin 5
pin C9	pin 1
pin B9	pin 6
pin C7	pin 3
pin C8	pin 10
pin A7	pin 7
pin A8	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27118 to the Spoiler PCU-3.
 - 3) Re-install the ACE-R, M27221. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do the Repair Confirmation at the end of this task.
 - (d) If you do not find a problem with the wiring, connect connector DM27118 to the Spoiler PCU-3, then continue.
- (4) Install a new ACE-R, M27221. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-61 TASK 803

D633W103-ARO

Page 212
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

804. Spoiler Power Control Unit (5) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10504.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-5 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-5, M27120
- (2) Spoiler PCU-5 EHSV
- (3) ACE (Left 2), M27122
- (4) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

E. Related Data

- (1) WDM 27-11-11
- (2) WDM 27-61-13

F. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then look for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM Tasks.

ARO 005-999; ARO 001-004 POST SB 777-27-0111

- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Check the Main Hydraulic System Pressure.
 - 1) If the pressure is less than 1000 psi, this can be a normal condition caused by the PFC software that continuously monitors the spoiler operation and Hydraulic Pressure information.
 - (b) To determine if it is a nuisance fault, pressurize the applicable Hydraulic System and check if the message clears or changes to an inactive mode.

EFFECTIVITY
ARO ALL

27-61 TASKS 803-804

D633W103-ARO

Page 213
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

ARO 005-999; ARO 001-004 POST SB 777-27-0111 (Continued)

- 1) If the fault shows LATCHED with the Hydraulic System pressurized, then continue.

ARO ALL

- (4) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
 - (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

G. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-5:
 - (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #5 position during the task.
 - 1) If the Spoiler #5 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do these tasks to replace the Spoiler PCU-5:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the Spoiler #5 position readout is within limits at each AMM Task step, then continue.
- (2) Do this check of the Spoiler PCU-5 Electro-Hydraulic Servo Valve (EHSV):
 - (a) Disconnect connector DM27120 from the Spoiler PCU-5.
 - (b) Visually inspect the connector for damaged or contaminated pins.
 - 1) If you find damage, replace the Spoiler PCU-5. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find contamination, clean the connector (SWPM 20-60-01), then continue.
 - 3) If you do not find damage or contamination, then continue.

EFFECTIVITY
ARO ALL

27-61 TASK 804

D633W103-ARO

Page 214
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Do this task for the Spoiler PCU-5: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For Flight Control PCU Wiring, a short is considered a resistance of 50000 Ohms or less.

NOTE: This task includes the Resistance Check and Low Voltage Insulation Resistance Check.

- 1) If a wiring problem is found in either pin 3 or 10, do this task to remove the EHSV: Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801.
 - a) Inspect the Spoiler PCU-5 EHSV electrical connector for contaminated or damaged pins.
 - <1> If you find damage or contamination, do these steps:
 - <a> Do this task to re-install the removed EHSV:
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Do these tasks to replace the Spoiler PCU-5:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - I. Do the Repair Confirmation at the end of this task.
 - <2> If you find no damage or contamination on the Spoiler PCU-5 EHSV connector, then replace the EHSV. These are the tasks:
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - <a> Do this task for the Spoiler PCU-5: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
 - I. If no wiring problems are found, then do the Repair Confirmation at the end of this task.
 - II. If a wiring problem is found, do these tasks to re-install the original EHSV and replace the Spoiler PCU-5:
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - III. Do the Repair Confirmation at the end of this task.

EFFECTIVITY
ARO ALL

27-61 TASK 804

D633W103-ARO

Page 215
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) If a wiring problem is detected for other pins except 3 and 10, replace the Spoiler PCU-5. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
- 3) If no wiring problems are found, then continue.
- (3) Do this check of the Command Wiring and Feedback Wiring:
 - (a) Remove the Left Actuator Control Electronics (ACE-L2), M27122, from the E1-1 shelf. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Do a wiring check between the ACE-L2 and the Spoiler PCU-5 as follows (WDM 27-61-13):

NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

ACE-L2		SPOILER PCU-5
DM27122AA		DM27120
pin A9	.....	pin 5
pin C9	.....	pin 1
pin B9	.....	pin 6
pin C7	.....	pin 3
pin C8	.....	pin 10
pin A7	.....	pin 7
pin A8	.....	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27120 to the Spoiler PCU-5.
 - 3) Re-install the ACE-L2, M27122. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do the Repair Confirmation at the end of this task.
- (d) If you do not find a problem with the wiring, connect connector DM27120 to the Spoiler PCU-5, then continue.
- (4) Install a new ACE-L2, M27120. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-61 TASK 804

D633W103-ARO

Page 216
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

805. Spoiler Power Control Unit (6) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10505.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-6 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-6, M27114
- (2) Spoiler PCU-6 EHSV
- (3) ACE (Right), M27221
- (4) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

E. Related Data

- (1) WDM 27-11-14
- (2) WDM 27-61-17

F. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then look for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM Tasks.

EFFECTIVITY
ARO ALL

27-61 TASKS 804-805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 217
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

ARO 005-999; ARO 001-004 POST SB 777-27-0111

- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Check the Main Hydraulic System Pressure.
 - 1) If the pressure is less than 1000 psi, this can be a normal condition caused by the PFC software that continuously monitors the spoiler operation and Hydraulic Pressure information.
 - (b) To determine if it is a nuisance fault, pressurize the applicable Hydraulic System and check if the message clears or changes to an inactive mode.
 - 1) If the fault shows LATCHED with the Hydraulic System pressurized, then continue.

ARO ALL

- (4) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
- (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

G. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-6:
- (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #6 position during the task.
 - 1) If the Spoiler #6 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do these tasks to replace the Spoiler PCU-6:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the Spoiler #6 position readout is within limits at each AMM Task step, then continue.
- (2) Do this check of the Spoiler PCU-6 Electro-Hydraulic Servo Valve (EHSV):
- (a) Disconnect connector DM27114 from the Spoiler PCU-6.
 - (b) Visually inspect the connector for damaged or contaminated pins.
 - 1) If you find damage, replace the Spoiler PCU-6. These are the tasks:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find contamination, clean the connector (SWPM 20-60-01), then continue.

EFFECTIVITY
ARO ALL

27-61 TASK 805

D633W103-ARO

Page 218
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If you do not find damage or contamination, then continue.
- (c) Do this task for the Spoiler PCU-6: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For Flight Control PCU Wiring, a short is considered a resistance of 50000 Ohms or less.

NOTE: This task includes the Resistance Check and Low Voltage Insulation Resistance Check.

- 1) If a wiring problem is found in either pin 3 or 10, do this task to remove the EHSV: Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801.
- a) Inspect the Spoiler PCU-6 EHSV electrical connector for contaminated or damaged pins.
- <1> If you find damage or contamination, do these steps:
- <a> Do this task to re-install the removed EHSV:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- Do these tasks to replace the Spoiler PCU-6:
- Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
- I. Do the Repair Confirmation at the end of this task.
- <2> If you find no damage or contamination on the Spoiler PCU-6 EHSV connector, then replace the EHSV. These are the tasks:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- <a> Do this task for the Spoiler PCU-6: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- I. If no wiring problems are found, then do the Repair Confirmation at the end of this task.
- II. If a wiring problem is found, do these tasks to re-install the original EHSV and replace the Spoiler PCU-6:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801

EFFECTIVITY
ARO ALL

27-61 TASK 805

D633W103-ARO

Page 219
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

III. Do the Repair Confirmation at the end of this task.

- 2) If a wiring problem is detected for other pins except 3 and 10, replace the Spoiler PCU-6. These are the tasks:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If no wiring problems are found, then continue.
- (3) Do this check of the Command Wiring and Feedback Wiring:
- (a) Remove the Right Actuator Control Electronics (ACE-R), M27221, from the E5-2 shelf. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Do a wiring check between the ACE-R and the Spoiler PCU-6 as follows (WDM 27-61-17):
- NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

ACE-R	SPOILER PCU-6
DM27221AC	DM27114
pin K7	pin 5
pin H7	pin 1
pin J7	pin 6
pin H5	pin 3
pin H6	pin 10
pin K5	pin 7
pin K6	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27114 to the Spoiler PCU-6.
 - 3) Re-install the ACE-R, M27221. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do the Repair Confirmation at the end of this task.
 - (d) If you do not find a problem with the wiring, connect connector DM27114 to the Spoiler PCU-6, then continue.
- (4) Install a new ACE-R, M27221. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-61 TASK 805

D633W103-ARO

Page 220
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

806. Spoiler Power Control Unit (7) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10506.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-7 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-7, M27115
- (2) Spoiler PCU-7 EHSV
- (3) ACE (Center), M27321
- (4) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

E. Related Data

- (1) WDM 27-11-12
- (2) WDM 27-61-15

F. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then look for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM Tasks.

EFFECTIVITY
ARO ALL

27-61 TASKS 805-806

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 221
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

ARO 005-999; ARO 001-004 POST SB 777-27-0111

- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Check the Main Hydraulic System Pressure.
 - 1) If the pressure is less than 1000 psi, this can be a normal condition caused by the PFC software that continuously monitors the spoiler operation and Hydraulic Pressure information.
 - (b) To determine if it is a nuisance fault, pressurize the applicable Hydraulic System and check if the message clears or changes to an inactive mode.
 - 1) If the fault shows LATCHED with the Hydraulic System pressurized, then continue.

ARO ALL

- (4) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1,7,8,14 System.
 - (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

G. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-7:
 - (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #7 position during the task.
 - 1) If the Spoiler #7 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do these tasks to replace the Spoiler PCU-7:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the Spoiler #7 position readout is within limits at each AMM Task step, then continue.
- (2) Do this check of the Spoiler PCU-7 Electro-Hydraulic Servo Valve (EHSV):
 - (a) Disconnect connector DM27115 from the Spoiler PCU-7.
 - (b) Visually inspect the connector for damaged or contaminated pins.
 - 1) If you find damage, replace the Spoiler PCU-7. These are the tasks:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find contamination, clean the connector (SWPM 20-60-01), then continue.

EFFECTIVITY
ARO ALL

27-61 TASK 806

D633W103-ARO

Page 222
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If you do not find damage or contamination, then continue.
- (c) Do this task for the Spoiler PCU-7: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For Flight Control PCU Wiring, a short is considered a resistance of 50000 Ohms or less.

NOTE: This task includes the Resistance Check and Low Voltage Insulation Resistance Check.

- 1) If a wiring problem is found in either pin 3 or 10, do this task to remove the EHSV: Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801.
- a) Inspect the Spoiler PCU-7 EHSV electrical connector for contaminated or damaged pins.
- <1> If you find damage or contamination, do these steps:
- <a> Do this task to re-install the removed EHSV:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- Do these tasks to replace the Spoiler PCU-7:
- Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
- I. Do the Repair Confirmation at the end of this task.
- <2> If you find no damage or contamination on the Spoiler PCU-7 EHSV connector, then replace the EHSV. These are the tasks:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- <a> Do this task for the Spoiler PCU-7: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- I. If no wiring problems are found, then do the Repair Confirmation at the end of this task.
- II. If a wiring problem is found, do these tasks to re-install the original EHSV and replace the Spoiler PCU-7:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801

EFFECTIVITY
ARO ALL

27-61 TASK 806

D633W103-ARO

Page 223
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

III. Do the Repair Confirmation at the end of this task.

- 2) If a wiring problem is detected for other pins except 3 and 10, replace the Spoiler PCU-7. These are the tasks:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If no wiring problems are found, then continue.
- (3) Do this check of the Command Wiring and Feedback Wiring:
- (a) Remove the Center Actuator Control Electronics (ACE-C), M27321, from the E2-5 shelf. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Do a wiring check between the ACE-C and the Spoiler PCU-7 as follows (WDM 27-61-15):
- NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

ACE-C	SPOILER PCU-7
DM27321AA	DM27115
pin K7	pin 5
pin H7	pin 1
pin J7	pin 6
pin H5	pin 3
pin H6	pin 10
pin K5	pin 7
pin K6	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27115 to the Spoiler PCU-7.
 - 3) Re-install the ACE-C, M27321. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do the Repair Confirmation at the end of this task.
 - (d) If you do not find a problem with the wiring, connect connector DM27115 to the Spoiler PCU-7, then continue.
- (4) Install a new ACE-C, M27321. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-61 TASK 806

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 224
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

807. Spoiler Power Control Unit (8) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10507.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-8 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-8, M27215
- (2) Spoiler PCU-8 EHSV
- (3) ACE (Center), M27321
- (4) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

E. Related Data

- (1) WDM 27-11-12
- (2) WDM 27-61-15

F. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then look for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM Tasks.

EFFECTIVITY
ARO ALL

27-61 TASKS 806-807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 225
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

ARO 005-999; ARO 001-004 POST SB 777-27-0111

- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Check the Main Hydraulic System Pressure.
 - 1) If the pressure is less than 1000 psi, this can be a normal condition caused by the PFC software that continuously monitors the spoiler operation and Hydraulic Pressure information.
 - (b) To determine if it is a nuisance fault, pressurize the applicable Hydraulic System and check if the message clears or changes to an inactive mode.
 - 1) If the fault shows LATCHED with the Hydraulic System pressurized, then continue.

ARO ALL

- (4) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1,7,8,14 System.
- (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

G. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-8:
- (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #8 position during the task.
 - 1) If the Spoiler #8 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do these tasks to replace the Spoiler PCU-8:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the Spoiler #8 position readout is within limits at each AMM Task step, then continue.
- (2) Do this check of the Spoiler PCU-8 Electro-Hydraulic Servo Valve (EHSV):
- (a) Disconnect connector DM27215 from the Spoiler PCU-8.
 - (b) Visually inspect the connector for damaged or contaminated pins.
 - 1) If you find damage, replace the Spoiler PCU-8. These are the tasks:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find contamination, clean the connector (SWPM 20-60-01), then continue.

EFFECTIVITY
ARO ALL

27-61 TASK 807

D633W103-ARO

Page 226
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If you do not find damage or contamination, then continue.
- (c) Do this task for the Spoiler PCU-8: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For Flight Control PCU Wiring, a short is considered a resistance of 50000 Ohms or less.

NOTE: This task includes the Resistance Check and Low Voltage Insulation Resistance Check.

- 1) If a wiring problem is found in either pin 3 or 10, do this task to remove the EHSV: Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801.
- a) Inspect the Spoiler PCU-8 EHSV electrical connector for contaminated or damaged pins.
- <1> If you find damage or contamination, do these steps:
- <a> Do this task to re-install the removed EHSV:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- Do these tasks to replace the Spoiler PCU-8:
- Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
- I. Do the Repair Confirmation at the end of this task.
- <2> If you find no damage or contamination on the Spoiler PCU-8 EHSV connector, then replace the EHSV. These are the tasks:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- <a> Do this task for the Spoiler PCU-8: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- I. If no wiring problems are found, then do the Repair Confirmation at the end of this task.
- II. If a wiring problem is found, do these tasks to re-install the original EHSV and replace the Spoiler PCU-8:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801

EFFECTIVITY
ARO ALL

27-61 TASK 807

D633W103-ARO

Page 227
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

III. Do the Repair Confirmation at the end of this task.

- 2) If a wiring problem is detected for other pins except 3 and 10, replace the Spoiler PCU-8. These are the tasks:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - a) Do the Repair Confirmation at the end of this task.
- 3) If no wiring problems are found, then continue.
- (3) Do this check of the Command Wiring and Feedback Wiring:
 - (a) Remove the Center Actuator Control Electronics (ACE-C), M27321, from the E2-5 shelf. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Do a wiring check between the ACE-C and the Spoiler PCU-8 as follows (WDM 27-61-15):

NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

ACE-C	SPOILER PCU-8
DM27321AC	DM27215
pin K7	pin 5
pin H7	pin 1
pin J7	pin 6
pin H5	pin 3
pin H6	pin 10
pin K5	pin 7
pin K6	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27215 to the Spoiler PCU-8.
 - 3) Re-install the ACE-C, M27321. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do the Repair Confirmation at the end of this task.
- (d) If you do not find a problem with the wiring, connect connector DM27215 to the Spoiler PCU-8, then continue.
- (4) Install a new ACE-C, M27321. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-61 TASK 807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 228
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

808. Spoiler Power Control Unit (9) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10508.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-9 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-9, M27214
- (2) Spoiler PCU-9 EHSV
- (3) ACE (Right), M27221
- (4) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

E. Related Data

- (1) WDM 27-11-14
- (2) WDM 27-61-17

F. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then look for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM Tasks.

EFFECTIVITY
ARO ALL

27-61 TASKS 807-808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 229
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

ARO 005-999; ARO 001-004 POST SB 777-27-0111

- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Check the Main Hydraulic System Pressure.
 - 1) If the pressure is less than 1000 psi, this can be a normal condition caused by the PFC software that continuously monitors the spoiler operation and Hydraulic Pressure information.
 - (b) To determine if it is a nuisance fault, pressurize the applicable Hydraulic System and check if the message clears or changes to an inactive mode.
 - 1) If the fault shows LATCHED with the Hydraulic System pressurized, then continue.

ARO ALL

- (4) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
- (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

G. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-9:
- (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #9 position during the task.
 - 1) If the Spoiler #9 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do these tasks to replace the Spoiler PCU-9:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the Spoiler #9 position readout is within limits at each AMM Task step, then continue.
- (2) Do this check of the Spoiler PCU-9 Electro-Hydraulic Servo Valve (EHSV):
- (a) Disconnect connector DM27214 from the Spoiler PCU-9.
 - (b) Visually inspect the connector for damaged or contaminated pins.
 - 1) If you find damage, replace the Spoiler PCU-9. These are the tasks:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find contamination, clean the connector (SWPM 20-60-01), then continue.

EFFECTIVITY
ARO ALL

27-61 TASK 808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 230
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 3) If you do not find damage or contamination, then continue.
- (c) Do this task for the Spoiler PCU-9: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For Flight Control PCU Wiring, a short is considered a resistance of 50000 Ohms or less.

NOTE: This task includes the Resistance Check and Low Voltage Insulation Resistance Check.

- 1) If a wiring problem is found in either pin 3 or 10, do this task to remove the EHSV: Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801.
- a) Inspect the Spoiler PCU-9 EHSV electrical connector for contaminated or damaged pins.
- <1> If you find damage or contamination, do these steps:
- <a> Do this task to re-install the removed EHSV:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- Do these tasks to replace the Spoiler PCU-9:
- Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
- I. Do the Repair Confirmation at the end of this task.
- <2> If you find no damage or contamination on the Spoiler PCU-9 EHSV connector, then replace the EHSV. These are the tasks:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- <a> Do this task for the Spoiler PCU-9: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- I. If no wiring problems are found, then do the Repair Confirmation at the end of this task.
- II. If a wiring problem is found, do these tasks to re-install the original EHSV and replace the Spoiler PCU-9:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801

EFFECTIVITY
ARO ALL

27-61 TASK 808

D633W103-ARO

Page 231
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

III. Do the Repair Confirmation at the end of this task.

- 2) If a wiring problem is detected for other pins except 3 and 10, replace the Spoiler PCU-9. These are the tasks:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If no wiring problems are found, then continue.
- (3) Do this check of the Command Wiring and Feedback Wiring:
- (a) Remove the Right Actuator Control Electronics (ACE-R), M27221, from the E5-2 shelf. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Do a wiring check between the ACE-R and the Spoiler PCU-9 as follows (WDM 27-61-17):
- NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

ACE-R	SPOILER PCU-9
DM27221AA	DM27214
pin K7	pin 5
pin H7	pin 1
pin J7	pin 6
pin H5	pin 3
pin H6	pin 10
pin K5	pin 7
pin K6	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27214 to the Spoiler PCU-9.
 - 3) Re-install the ACE-R, M27221. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do the Repair Confirmation at the end of this task.
 - (d) If you do not find a problem with the wiring, connect connector DM27214 to the Spoiler PCU-9, then continue.
- (4) Install a new ACE-R, M27221. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-61 TASK 808

D633W103-ARO

Page 232
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

809. Spoiler Power Control Unit (10) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10509.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-10 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-10, M27220
- (2) Spoiler PCU-10 EHSV
- (3) ACE (Left 2), M27122
- (4) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

E. Related Data

- (1) WDM 27-11-11
- (2) WDM 27-61-13

F. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then look for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM Tasks.

ARO 005-999; ARO 001-004 POST SB 777-27-0111

- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Check the Main Hydraulic System Pressure.
 - 1) If the pressure is less than 1000 psi, this can be a normal condition caused by the PFC software that continuously monitors the spoiler operation and Hydraulic Pressure information.
 - (b) To determine if it is a nuisance fault, pressurize the applicable Hydraulic System and check if the message clears or changes to an inactive mode.

EFFECTIVITY
ARO ALL

27-61 TASKS 808-809

D633W103-ARO

Page 233
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

ARO 005-999; ARO 001-004 POST SB 777-27-0111 (Continued)

- 1) If the fault shows LATCHED with the Hydraulic System pressurized, then continue.

ARO ALL

- (4) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
 - (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

G. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-10:
 - (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #10 position during the task.
 - 1) If the Spoiler #10 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do these tasks to replace the Spoiler PCU-10:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the Spoiler #10 position readout is within limits at each AMM Task step, then continue.
- (2) Do this check of the Spoiler PCU-10 Electro-Hydraulic Servo Valve (EHSV):
 - (a) Disconnect connector DM27220 from the Spoiler PCU-10.
 - (b) Visually inspect the connector for damaged or contaminated pins.
 - 1) If you find damage, replace the Spoiler PCU-10. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find contamination, clean the connector (SWPM 20-60-01), then continue.
 - 3) If you do not find damage or contamination, then continue.

EFFECTIVITY
ARO ALL

27-61 TASK 809

D633W103-ARO

Page 234
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Do this task for the Spoiler PCU-10: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For Flight Control PCU Wiring, a short is considered a resistance of 50000 Ohms or less.

NOTE: This task includes the Resistance Check and Low Voltage Insulation Resistance Check.

- 1) If a wiring problem is found in either pin 3 or 10, do this task to remove the EHSV: Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801.
 - a) Inspect the Spoiler PCU-10 EHSV electrical connector for contaminated or damaged pins.
 - <1> If you find damage or contamination, do these steps:
 - <a> Do this task to re-install the removed EHSV:
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Do these tasks to replace the Spoiler PCU-10:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - I. Do the Repair Confirmation at the end of this task.
 - <2> If you find no damage or contamination on the Spoiler PCU-10 EHSV connector, then replace the EHSV. These are the tasks:
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - <a> Do this task for the Spoiler PCU-10: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
 - I. If no wiring problems are found, then do the Repair Confirmation at the end of this task.
 - II. If a wiring problem is found, do these tasks to re-install the original EHSV and replace the Spoiler PCU-10:
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - III. Do the Repair Confirmation at the end of this task.

EFFECTIVITY
ARO ALL

27-61 TASK 809

D633W103-ARO

Page 235
May 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) If a wiring problem is detected for other pins except 3 and 10, replace the Spoiler PCU-10. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
- 3) If no wiring problems are found, then continue.
- (3) Do this check of the Command Wiring and Feedback Wiring:
 - (a) Remove the Left Actuator Control Electronics (ACE-L2), M27122, from the E1-1 shelf. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Do a wiring check between the ACE-L2 and the Spoiler PCU-10 as follows (WDM 27-61-13):

NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

ACE-L2		SPOILER
DM27122AC		PCU-10
		DM27220
pin A9	.....	pin 5
pin C9	.....	pin 1
pin B9	.....	pin 6
pin C7	.....	pin 3
pin C8	.....	pin 10
pin A7	.....	pin 7
pin A8	.....	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27220 to the Spoiler PCU-10.
 - 3) Re-install the ACE-L2, M27122. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do the Repair Confirmation at the end of this task.
- (d) If you do not find a problem with the wiring, connect connector DM27220 to the Spoiler PCU-10, then continue.
- (4) Install a new ACE-L2, M27220. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-61 TASK 809

D633W103-ARO

Page 236
May 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

810. Spoiler Power Control Unit (11) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10510.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-11 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-11 Solenoid Valve
(2) Wiring
(3) Spoiler PCU-11, M27219
(4) ACE (Left 2), M27122
(5) PCU Control Cables out of adjustment

D. Related Data

- (1) WDM 27-11-18
(2) WDM 27-61-13

E. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then check for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM tasks.
- (3) If the MAT shows LATCHED for the maintenance message and the message is not correlated to a FLT CONTROL SYS or SPOILERS Advisory EICAS message, it should be considered a nuisance message and it can be disregarded.
- (a) To clear the message, do this task: Uncorrelated Cable-Controlled Spoiler PCU Maintenance Message - Fault Isolation, 27-61 TASK 848.
- (4) If the MAT shows LATCHED for the maintenance message and the message is correlated to a FLT CONTROL SYS or SPOILERS Advisory EICAS message, clear any other correlated messages before you do this Fault Isolation Procedure or Spoiler Power Control Unit (4) Command Problems - Fault Isolation, 27-61 TASK 841 for message 27-10503. Then do the Ground Test below.
- (5) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
- (a) Push the Speedbrake lever forward to make sure that it is in the DOWN position.
- (b) If the maintenance message shows on the Ground Test Display and is uncorrelated to either the FLT CONTROL SYS or SPOILERS EICAS messages, then it may be considered a nuisance message and it can be disregarded.
- 1) To clear the message, do this task: Uncorrelated Cable-Controlled Spoiler PCU Maintenance Message - Fault Isolation, 27-61 TASK 848.

EFFECTIVITY
ARO ALL

27-61 TASKS 809-810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 237
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message shows on the Ground Test Display and is correlated to either the FLT CONTROL SYS or SPOILERS EICAS messages, then do the Fault Isolation Procedure below.
- (d) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

F. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-11:
 - (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #11 position during the task.
 - 1) If the Spoiler #11 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do a visual inspection of the Spoiler #11 PCU wire bundle for contamination, corrosion, and damaged pins.
 - 2) If the airplane is pre SB 777-27-0107, replace the existing spoiler PCU jumper wire bundle (P/N 24654-131) with a new design jumper wire bundle (P/N 24654-210) or jumper wire bundle (P/N 24654-131).
 - 3) If the problem continues, do these tasks to replace the Spoiler PCU-11:
 - Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-000-801
 - Cable-Controlled Spoiler Power Control Unit - Installation, AMM TASK 27-61-09-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 4) If the Spoiler #11 position readout is within limits at each AMM Task step, then continue.
 - (2) Make sure that the Control Wheels are in the neutral position.
 - (3) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (4) Do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (a) If both Spoiler 11 and Spoiler 4 are not in the down position, remove the Main Hydraulic System Power (Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808). Do a check for 28V DC at Terminal QB41 of TB1101 (WDM 27-11-18).
 - 1) If you do not find 28V DC, examine and repair the wiring between the Terminal Block and the FLPRN PCU RIB (BYP) SPLRS 4 & 11 Circuit Breaker, C27610 (WDM 27-11-18).
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find 28V DC, then do these steps:

EFFECTIVITY
ARO ALL

27-61 TASK 810

D633W103-ARO

Page 238
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) Pressurize the Main Hydraulic System Power. This is the task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- b) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11

- <1> If Spoiler 11 and Spoiler 4 move to the down position, remove the Main Hydraulic System Power (Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808).
- <2> Disconnect connector DM27219 from the Spoiler PCU-11 (WDM 27-61-13).
- <3> Do a check for an electrical short to structure ground from pin 3 of connector DM27219.
- <4> If you find an electrical short at pin 3 of connector DM27219, exchange the ACEs (Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27).

NOTE: When you swap the ACEs, examine the pins on the Line Replaceable Unit (LRU) connectors and the Rack connectors. Make sure that the pins are not damaged, before you install the ACEs back in the Rack.

- <a> If the problem is corrected, replace the suspect ACE-L2. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - I. Do the Repair Confirmation at the end of this task.
- If the problem continues, disconnect electrical connector DM27122AC from the ACE, M27122 and examine the wiring from the ACE-L2 to Spoiler PCU-11 and PCU-4 as follows (WDM 27-61-13):

DM27219	DM27122AC
pin 3	pin H3

DM27119	DM27122AC
pin 3	pin F4

- I. If you find a problem with the wiring, repair it as necessary.
- II. Re-connect connectors DM27119, DM27219 and connector DM27122AC.
- III. Re-install the ACE-L2, M27122. Do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-61 TASK 810

D633W103-ARO

Page 239
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

IV. Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11

V. Do the Repair Confirmation at the end of this task.

(b) If only Spoiler (11) is not in the down position, continue.

(5) Do a check for 28V DC at Spoiler 11 as follows:

(a) Disconnect connector DM27219 from the Spoiler PCU-11 (WDM 27-61-13).

(b) Do a check for 28V DC at pin 10 of connector DM27219.

1) If you find 28V DC, do a continuity check between pins 3 and 10, at the Spoiler PCU body.

a) If you do not find continuity, replace the Spoiler PCU-11 Solenoid Valve. These are the tasks:

- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801

<1> Do the Repair Confirmation at the end of this task.

b) If you find continuity, do this task for obvious electrical faults in the Spoiler PCU-11 wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

<1> If you find a fault, replace the Spoiler PCU-11. These are the tasks:

- Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-000-801
- Cable-Controlled Spoiler Power Control Unit - Installation, AMM TASK 27-61-09-400-801

<2> If you find no faults with the Spoiler PCU-11 wiring, then do a check of the Spoiler PCU-11 Airplane Wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.

<a> If you find a fault, repair or replace the applicable wiring.

 Do the Repair Confirmation at the end of this task.

2) If you do not find 28V DC at the Spoiler PCU-11, examine the wiring between the Spoiler PCU-11 connector DM27219 and ACE-L2 at the E1-1 shelf as follows (WDM 27-61-13):

a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R

EFFECTIVITY
ARO ALL

27-61 TASK 810

D633W103-ARO

Page 240
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- c) Do a check of the command wiring as follows:

DM27219	DM27122AC
pin 3	pin H3

- d) Do a check of the feedback wiring as follows:

DM27219	DM27122AC
pin 1	pin H7
pin 5	pin K7
pin 6	pin J7
pin 7	pin K5
pin 8	pin K6

- e) If you find a problem with the wiring, then repair it as necessary.
- f) Re-connect connector DM27219 to the Spoiler PCU-11.
- g) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- h) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- i) Do the Repair Confirmation at the end of this task.
- (6) If the problem continues, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (7) Use the PFCS MAINTENANCE pages to do a check of the Spoiler rigging.
- (a) Turn the captain's Control Wheel clockwise until the value for the CAPT WHEEL POSITION 1 is 1.36 to 1.51 on PFCS MAINTENANCE page 1. Hold the Control Wheel in that position.
- (b) Look at the PFCS MAINTENANCE page 2 and make sure that the value for SPOILER POSITION 11 is 1.39 to 1.79.

EFFECTIVITY
ARO ALL

27-61 TASK 810

D633W103-ARO

Page 241
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the value for SPOILER POSITION 11 is 1.39 to 1.79, do these steps:
- 1) Exchange the ACE for M27122. Do this task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
NOTE: When you swap the ACEs, examine the pins on the LRU connectors and the Rack connectors. Make sure that the pins are not damaged, before you install the ACEs back in the Rack.
 - 2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Do the Repair Confirmation at the end of this task.
- (d) If the value for SPOILER POSITION 11 is not 1.39 to 1.79, then continue.
- (8) Do the Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11), AMM TASK 27-61-00-700-802.
- (a) Adjust, repair or replace defective components as necessary.
 - (b) Do the Repair Confirmation at the end of this task.
- (9) If the problem continues, do a check of the Cable-controlled Spoiler PCU Speedbrake Mode Valve (SMV).
- (a) If the EICAS Messages "SPOILER" (Advisory) and "FLIGHT CONTROL SYS" appear on the EICAS Display, then the PCU is the root cause and the following apply:
 - 1) Cable-controlled Spoiler Panels 4, 11 remain deployed after the Speedbrake Handle is stowed, usually following exposure to a long cold-soak period.
 - 2) Cable-controlled Spoiler Panels exhibiting this condition, operate normally when they warm up, or will return to faired position upon hydraulic shutdown.
 - 3) Cable-controlled Spoiler faults are intermittent and maintenance messages can be cleared.
 - (b) Replace the faulty Spoiler 4, 11 PCU Speedbrake Mode Valve (SMV). These are the tasks:
 - Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-000-801
 - Cable-Controlled Spoiler Power Control Unit - Installation, AMM TASK 27-61-09-400-801
- (c) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
 - (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-61 TASK 810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 242
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

811. Spoiler Power Control Unit (12) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10511.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-12 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-12, M27218
- (2) Spoiler PCU-12 EHSV
- (3) ACE (Right), M27221
- (4) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)
D	2	CBD2-R	PFC LANE 1
D	4	CBD4-R	PFC LANE 2
D	6	CBD6-R	PFC LANE 3
D	8	CBD8-R	PFC BAT INTLK

E. Related Data

- (1) WDM 27-11-14
- (2) WDM 27-61-17

F. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then look for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM Tasks.

ARO 005-999; ARO 001-004 POST SB 777-27-0111

- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Check the Main Hydraulic System Pressure.
 - 1) If the pressure is less than 1000 psi, this can be a normal condition caused by the PFC software that continuously monitors the spoiler operation and Hydraulic Pressure information.
 - (b) To determine if it is a nuisance fault, pressurize the applicable Hydraulic System and check if the message clears or changes to an inactive mode.

EFFECTIVITY
ARO ALL

27-61 TASK 811

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 243
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO 005-999; ARO 001-004 POST SB 777-27-0111 (Continued)

- 1) If the fault shows LATCHED with the Hydraulic System pressurized, then continue.

ARO ALL

- (4) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
 - (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

G. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-12:
 - (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #12 position during the task.
 - 1) If the Spoiler #12 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do these tasks to replace the Spoiler PCU-12:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the Spoiler #12 position readout is within limits at each AMM Task step, then continue.
- (2) Do this check of the Spoiler PCU-12 Electro-Hydraulic Servo Valve (EHSV):
 - (a) Disconnect connector DM27218 from the Spoiler PCU-12.
 - (b) Visually inspect the connector for damaged or contaminated pins.
 - 1) If you find damage, replace the Spoiler PCU-12. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find contamination, clean the connector (SWPM 20-60-01), then continue.
 - 3) If you do not find damage or contamination, then continue.

EFFECTIVITY
ARO ALL

27-61 TASK 811

D633W103-ARO

Page 244
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Do this task for the Spoiler PCU-12: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For Flight Control PCU Wiring, a short is considered a resistance of 50000 Ohms or less.

NOTE: This task includes the Resistance Check and Low Voltage Insulation Resistance Check.

- 1) If a wiring problem is found in either pin 3 or 10, do this task to remove the EHSV: Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801.
 - a) Inspect the Spoiler PCU-12 EHSV electrical connector for contaminated or damaged pins.
 - <1> If you find damage or contamination, do these steps:
 - <a> Do this task to re-install the removed EHSV:
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Do these tasks to replace the Spoiler PCU-12:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - I. Do the Repair Confirmation at the end of this task.
 - <2> If you find no damage or contamination on the Spoiler PCU-12 EHSV connector, then replace the EHSV. These are the tasks:
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - <a> Do this task for the Spoiler PCU-12: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
 - I. If no wiring problems are found, then do the Repair Confirmation at the end of this task.
 - II. If a wiring problem is found, do these tasks to re-install the original EHSV and replace the Spoiler PCU-12:
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - III. Do the Repair Confirmation at the end of this task.

EFFECTIVITY
ARO ALL

27-61 TASK 811

D633W103-ARO

Page 245
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If a wiring problem is detected for other pins except 3 and 10, replace the Spoiler PCU-12. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
- 3) If no wiring problems are found, then continue.
- (3) Do this check of the Command Wiring and Feedback Wiring:
 - (a) Remove the Right Actuator Control Electronics (ACE-R), M27221, from the E5-2 shelf. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Do a wiring check between the ACE-R and the Spoiler PCU-12 as follows (WDM 27-61-17):

NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

ACE-R	SPOILER
DM27221AA	PCU-12
	DM27118
pin A9	pin 5
pin C9	pin 1
pin B9	pin 6
pin C7	pin 3
pin C8	pin 10
pin A7	pin 7
pin A8	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27218 to the Spoiler PCU-12.
 - 3) Re-install the ACE-R, M27221. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do the Repair Confirmation at the end of this task.
- (d) If you do not find a problem with the wiring, connect connector DM27218 to the Spoiler PCU-12, then continue.
- (4) Install a new ACE-R, M27221. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-61 TASK 811

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 246
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

812. Spoiler Power Control Unit (13) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10512.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-13 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-13, M27217
- (2) Spoiler PCU-13 EHSV
- (3) ACE (Left 1), M27121
- (4) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)
D	2	CBD2-L	PFC LANE 1
D	4	CBD4-L	PFC LANE 2
D	6	CBD6-L	PFC LANE 3
D	8	CBD8-L	PFC BAT INTLK

E. Related Data

- (1) WDM 27-11-13
- (2) WDM 27-61-11

F. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then look for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM Tasks.

EFFECTIVITY
ARO ALL

27-61 TASKS 811-812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 247
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO 005-999; ARO 001-004 POST SB 777-27-0111

- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Check the Main Hydraulic System Pressure.
 - 1) If the pressure is less than 1000 psi, this can be a normal condition caused by the PFC software that continuously monitors the spoiler operation and Hydraulic Pressure information.
 - (b) To determine if it is a nuisance fault, pressurize the applicable Hydraulic System and check if the message clears or changes to an inactive mode.
 - 1) If the fault shows LATCHED with the Hydraulic System pressurized, then continue.

ARO ALL

- (4) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 2, 13 System.
 - (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

G. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-13:
 - (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #13 position during the task.
 - 1) If the Spoiler #13 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do these tasks to replace the Spoiler PCU-13:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the Spoiler #13 position readout is within limits at each AMM Task step, then continue.
- (2) Do this check of the Spoiler PCU-13 Electro-Hydraulic Servo Valve (EHSV):
 - (a) Disconnect connector DM27217 from the Spoiler PCU-13.
 - (b) Visually inspect the connector for damaged or contaminated pins.
 - 1) If you find damage, replace the Spoiler PCU-13. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find contamination, clean the connector (SWPM 20-60-01), then continue.

EFFECTIVITY
ARO ALL

27-61 TASK 812

D633W103-ARO

Page 248
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) If you do not find damage or contamination, then continue.
- (c) Do this task for the Spoiler PCU-13: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- NOTE: For Flight Control PCU Wiring, a short is considered a resistance of 50000 Ohms or less.
- NOTE: This task includes the Resistance Check and Low Voltage Insulation Resistance Check.
- 1) If a wiring problem is found in either pin 3 or 10, do this task to remove the EHSV: Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801.
- a) Inspect the Spoiler PCU-13 EHSV electrical connector for contaminated or damaged pins.
- <1> If you find damage or contamination, do these steps:
- <a> Do this task to re-install the removed EHSV:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- Do these tasks to replace the Spoiler PCU-13:
- Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
- I. Do the Repair Confirmation at the end of this task.
- <2> If you find no damage or contamination on the Spoiler PCU-13 EHSV connector, then replace the EHSV. These are the tasks:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- <a> Do this task for the Spoiler PCU-13: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- I. If no wiring problems are found, then do the Repair Confirmation at the end of this task.
- II. If a wiring problem is found, do these tasks to re-install the original EHSV and replace the Spoiler PCU-13:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

EFFECTIVITY
ARO ALL

27-61 TASK 812

D633W103-ARO

Page 249
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

III. Do the Repair Confirmation at the end of this task.

- 2) If a wiring problem is detected for other pins except 3 and 10, replace the Spoiler PCU-13. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If no wiring problems are found, then continue.
- (3) Do this check of the Command Wiring and Feedback Wiring:
- (a) Remove the ACE-L1, M27121, from the E1-5 shelf. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Do a wiring check between the ACE-L1 and the Spoiler PCU-13 as follows (WDM 27-61-11):

NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

ACE-L1	SPOILER
DM27121AA	PCU-13
	DM27217
pin A9	pin 5
pin C9	pin 1
pin B9	pin 6
pin C7	pin 3
pin C8	pin 10
pin A7	pin 7
pin A8	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27217 to the Spoiler PCU-13.
 - 3) Re-install the ACE-L1, M27121. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do the Repair Confirmation at the end of this task.
 - (d) If you do not find a problem with the wiring, connect connector DM27217 to the Spoiler PCU-13, then continue.
- (4) Install a new ACE-L1, M27121. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do the Repair Confirmation at the end of this task.
- (5) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 2, 13 System.
- (6) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
- (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-61 TASK 812

D633W103-ARO

Page 250
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

813. Spoiler Power Control Unit (14) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10513.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-14 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-14, M27216
- (2) Spoiler PCU-14 EHSV
- (3) ACE (Center), M27321
- (4) Wiring

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)
D	2	CBD2-C	PFC LANE 1
D	4	CBD4-C	PFC LANE 2
D	6	CBD6-C	PFC LANE 3
D	8	CBD8-C	PFC BAT INTLK

E. Related Data

- (1) WDM 27-11-12
- (2) WDM 27-61-15

F. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then look for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM Tasks.

EFFECTIVITY
ARO ALL

27-61 TASKS 812-813

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 251
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO 005-999; ARO 001-004 POST SB 777-27-0111

- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Check the Main Hydraulic System Pressure.
 - 1) If the pressure is less than 1000 psi, this can be a normal condition caused by the PFC software that continuously monitors the spoiler operation and Hydraulic Pressure information.
 - (b) To determine if it is a nuisance fault, pressurize the applicable Hydraulic System and check if the message clears or changes to an inactive mode.
 - 1) If the fault shows LATCHED with the Hydraulic System pressurized, then continue.

ARO ALL

- (4) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1,7,8,14 System.
- (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803.

G. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-14:
- (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #14 position during the task.
 - 1) If the Spoiler #14 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do these tasks to replace the Spoiler PCU-14:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the Spoiler #14 position readout is within limits at each AMM Task step, then continue.
- (2) Do this check of the Spoiler PCU-14 Electro-Hydraulic Servo Valve (EHSV):
- (a) Disconnect connector DM27216 from the Spoiler PCU-14.
 - (b) Visually inspect the connector for damaged or contaminated pins.
 - 1) If you find damage, replace the Spoiler PCU-14. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If you find contamination, clean the connector (SWPM 20-60-01), then continue.

EFFECTIVITY
ARO ALL

27-61 TASK 813

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 252
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) If you do not find damage or contamination, then continue.
- (c) Do this task for the Spoiler PCU-14: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- NOTE: For Flight Control PCU Wiring, a short is considered a resistance of 50000 Ohms or less.
- NOTE: This task includes the Resistance Check and Low Voltage Insulation Resistance Check.
- 1) If a wiring problem is found in either pin 3 or 10, do this task to remove the EHSV: Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801.
- a) Inspect the Spoiler PCU-14 EHSV electrical connector for contaminated or damaged pins.
- <1> If you find damage or contamination, do these steps:
- <a> Do this task to re-install the removed EHSV:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- Do these tasks to replace the Spoiler PCU-14:
- Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
- I. Do the Repair Confirmation at the end of this task.
- <2> If you find no damage or contamination on the Spoiler PCU-14 EHSV connector, then replace the EHSV. These are the tasks:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
- <a> Do this task for the Spoiler PCU-14: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- I. If no wiring problems are found, then do the Repair Confirmation at the end of this task.
- II. If a wiring problem is found, do these tasks to re-install the original EHSV and replace the Spoiler PCU-14:
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
 - Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

EFFECTIVITY
ARO ALL

27-61 TASK 813

D633W103-ARO

Page 253
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

III. Do the Repair Confirmation at the end of this task.

- 2) If a wiring problem is detected for other pins except 3 and 10, replace the Spoiler PCU-14. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 3) If no wiring problems are found, then continue.
- (3) Do this check of the Command Wiring and Feedback Wiring:
- (a) Remove the Center Actuator Control Electronics (ACE-C), M27321, from the E2-5 shelf. This is the task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (b) Do a wiring check between the ACE-C and the Spoiler PCU-14 as follows (WDM 27-61-15):
- NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

ACE-C	SPOILER
DM27321AC	PCU-14
	DM27116
pin A9	pin 5
pin C9	pin 1
pin B9	pin 6
pin C7	pin 3
pin C8	pin 10
pin A7	pin 7
pin A8	pin 8

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27216 to the Spoiler PCU-14.
 - 3) Re-install the ACE-C, M27321. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Do the Repair Confirmation at the end of this task.
 - (d) If you do not find a problem with the wiring, connect connector DM27216 to the Spoiler PCU-14, then continue.
- (4) Install a new ACE-C, M27321. This is the task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.

EFFECTIVITY
ARO ALL

27-61 TASK 813

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 254
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.
- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

814. Spoiler Power Control Unit (1) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11500.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1,7,8,14 System.
 - (a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you corrected the fault, then perform the fault isolation task specified in the Maintenance Message Index.

 - (a) Put a tag that reads "SUSPECT" on the center actuator control electronics (ACE-C).
 - (b) Put a tag that reads "OK" on the right actuator control electronics (ACE-R).
 - (c) Remove the ACE-C and the ACE-R. To remove them, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (d) Install the ACE tagged SUSPECT in the ACE-R rack location, and install the ACE tagged OK in the ACE-C rack location. To install them, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

 - (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8 and 14 System.
 - (f) If the maintenance message 27-11500 does not show on the ground test display (after the test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove them, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801

EFFECTIVITY
ARO ALL

27-61 TASKS 813-814

D633W103-ARO

Page 255
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

2) Install the ACE tagged OK in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

3) Remove the ACE tagged SUSPECT from the airplane.

4) Install a new ACE in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8 and 14 System.

a) Push the speedbrake lever forward to make sure that it is in the DOWN position.

b) If the maintenance message does not show on the ground test display, you corrected the fault.

(g) If the maintenance message 27-11500 still shows on the ground test display (after the test), the ACE tagged SUSPECT is not faulty. Continue with step (h) below.

(h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove them, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

(i) Install the ACE tagged OK in the ACE-R rack location and the ACE tagged SUSPECT in the ACE-C rack location. To install them, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

(j) Remove the tags from the ACEs.

(2) Do this check of the excitation and feedback wiring:

(a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

1) A1, ACE PWR

2) A3, AIL PCU

3) A5, FLPRN PCU

4) A7, ELEV PCU

5) A9, RUD PCU

6) B2, STAB TRIM

7) B6, ELEV FEEL (C)

(b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

(c) Disconnect connector DM27116 from the number 1 spoiler power control unit (PCU).

(d) Visually inspect the DM27116 for any evidence of corrosion (SPWM 20-10-06)

(e) Do a wiring check between these pins of connector DM27321AA (for ACE-C) and connector DM27116 (at the spoiler PCU) (WDM 27-61-15).

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

EFFECTIVITY
ARO ALL

27-61 TASK 814

D633W103-ARO

Page 256
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27321AA

pin C7	.....	pin 3
pin C8	.....	pin 10
pin A7	.....	pin 7
pin A8	.....	pin 8
pin C9	.....	pin 1
pin A9	.....	pin 5
pin B9	.....	pin 6

DM27116

- 1) Check each individual pin 1, 3, 5, 6, 7, 8 and 10 for shorts to ground.
 - 2) Check for shorts between pins 1, 3, 5, 6, 7, 8 and 10.
- (f) If you find evidence of corrosion at the DM27116 or a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27116 to the number 1 spoiler PCU.
 - 3) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on PSA-C, M24301:
 - a) A1, ACE PWR
 - b) A3, AIL PCU
 - c) A5, FLPRN PCU
 - d) A7, ELEV PCU
 - e) A9, RUD PCU
 - f) B2, STAB TRIM
 - g) B6, ELEV FEEL (C)
 - 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1,7,8,14 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (3) Replace the number 1 spoiler PCU, M27116. Do these tasks: Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
- (4) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Close these circuit breakers on PSA-C, M24301:
- 1) A1, ACE PWR
 - 2) A3, AIL PCU
 - 3) A5, FLPRN PCU
 - 4) A7, ELEV PCU

EFFECTIVITY
ARO ALL

27-61 TASK 814

D633W103-ARO

Page 257
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 5) A9, RUD PCU
 - 6) B2, STAB TRIM
 - 7) B6, ELEV FEEL (C)
- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1,7,8,14 System.
- 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

815. Spoiler Power Control Unit (11) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11510.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
 - (a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):
- NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you corrected the fault, then perform the fault isolation task specified in the Maintenance Message Index.
- (a) Put a tag that reads "SUSPECT" on the right actuator control electronics (ACE-L2).
 - (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
 - (c) Remove the ACE-C and the ACE-L2. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-L2 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.
- (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.

EFFECTIVITY
ARO ALL

27-61 TASKS 814-815

D633W103-ARO

Page 258
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) If the maintenance message 27-11510 does not show on the ground test display (after the test), the ACE tagged SUSPECT is fault. Do these steps:
- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- NOTE: Make sure you do the ACE Installation Test.
- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
- a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If the maintenance message 27-11510 still shows on the ground test display (after the test), the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- (i) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (j) Remove the tag from ACE-C.
- (2) Do this check of the excitation and feedback wiring:
- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27219 from the number 11 spoiler power control unit (PCU).
- (d) Visually inspect the connector for evidence of corrosion (SPWM 20-10-06).
- (e) Do a wiring check between these pins of connector DM27122AC (for ACE-L2) and connector DM27219 (at the spoiler PCU), (WDM 27-61-13).

NOTE: For flight control PCU wiring, a short between contacts is a resistance of 50,000 Ohms or less.

EFFECTIVITY
ARO ALL

27-61 TASK 815

D633W103-ARO

Page 259
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27122AC

pin H3 pin 3
pin K5 pin 7
pin K6 pin 8
pin H7 pin 1
pin K7 pin 5
pin J7 pin 6

DM27219

DM27219

pin 10 pin 8

D4721

- 1) Check each individual pins 1, 3, 5, 6, 7, 8 and 10 for shorts to ground.
- 2) Check for shorts between pins 1, 3, 5, 6, 7, 8 and 10.
- (f) If you find evidence of corrosion or a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27219 to the spoiler PCU.
 - 3) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (3) Replace the number 11 spoiler PCU, M27219. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
- (4) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task:
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

EFFECTIVITY
ARO ALL

27-61 TASK 815

D633W103-ARO

Page 260
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
- 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

816. Speedbrake Lever Transducer Assembly, No. 1 Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12300.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU

EFFECTIVITY
ARO ALL

27-61 TASKS 815-816

D633W103-ARO

Page 261
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.

- (c) Disconnect connector DM27029A (the connector for the speedbrake lever transducer) at disconnect panel AEO160.

NOTE: The disconnect panel is in the area forward of the nose landing gear wheel well.

- (d) Do a wiring check between these pins of connector DM27121AC (for ACE-L1) and connector DM27029A (for the speedbrake lever transducer) (WDM 27-61-13)<

DM27121AC

pin D4	.....	pin 9
pin E4	.....	pin 8
pin D5	.....	pin 5
pin E6	.....	pin 1
pin E5	.....	pin 6

DM27029A

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27029A for the speedbrake lever transducer.
 - 3) Re-install ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.

EFFECTIVITY
ARO ALL

27-61 TASK 816

D633W103-ARO

Page 262
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the speedbrake lever transducer, M27029. These are the tasks:
- Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-000-801
 - Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

817. Speedbrake Lever Transducer Assembly, No. 1 Transducer Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12304.

EFFECTIVITY
ARO ALL

27-61 TASKS 816-817

D633W103-ARO

Page 263
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
 - (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27029A (the connector for the speedbrake lever transducer) at disconnect panel AEO160.

NOTE: The disconnect panel is in the area forward of the nose landing gear wheel well.
- (d) Do a wiring check between these pins of connector DM27121AC (for ACE-L1) and connector DM27029A (for the speedbrake lever transducer), (WDM 27-61-11):

DM27121AC	DM27029A
pin D5	pin 5
pin E5	pin 6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27029A for the speedbrake lever transducer.
 - 3) Re-install ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-61 TASK 817

D633W103-ARO

Page 264
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

- Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- Push the speedbrake lever forward to make sure that it is in the DOWN position.
- If the maintenance message does not show on the ground test display, you corrected the fault.

- (f) If you do not find a problem with the wiring, then continue.

- (g) Re-connect connector DM27029A for the speedbrake lever transducer.

- (2) Install a new ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

- (c) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.

- (d) Push the speedbrake lever forward to make sure that it is in the DOWN position.

- (e) If the maintenance message does not show on the ground test display, you corrected the fault.

- (f) If the maintenance message shows on the ground test display, then continue.

- (3) Replace the speedbrake lever transducers, M27029. These are the tasks:

EFFECTIVITY
ARO ALL

27-61 TASK 817

D633W103-ARO

Page 265
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-000-801
- Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801

NOTE: All four of the transducers for the speedbrake lever are in the M27029 assembly. It is not possible to adjust the transducers independently. You must adjust or replace all of the transducers at the same time.

- Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- Push the speedbrake lever forward to make sure that it is in the DOWN position.
- If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

818. Speedbrake Lever Transducer Assembly Multiple Transducer Problems - Fault Isolation

A. Maintenance Messages

- This task is for maintenance message: 27-12308.

B. Initial Evaluation

- Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

NOTE: This test will find which transducer has the problem. A new maintenance message will then show for that transducer.

- Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- Push the speedbrake lever forward to make sure that it is in the DOWN position.
- If one or more maintenance messages shows on the ground test display, then do these steps:
 - Find each maintenance message in the Maintenance Message Index.
 - Do the specified fault isolation task.
- If no maintenance message shows on the ground test display, then there was an intermittent fault.

————— **END OF TASK** —————

819. Spoiler Power Control Unit (2) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- This task is for maintenance message: 27-11501.

B. Initial Evaluation

- If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 2, 13 System.
 - Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-61 TASKS 817-819

D633W103-ARO

Page 266
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you corrected the fault, then perform the fault isolation task specified in the Maintenance Message Index.

 - (a) Put a tag that reads "SUSPECT" on the left actuator control electronics (ACE-L).
 - (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
 - (c) Remove the ACE-C and the ACE-L. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-L rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

 - (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 2, 13 System.
 - (f) If the maintenance message 27-11501 does not show on the ground test display (after the test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-L rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

 - 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 2, 13 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If the maintenance message 27-11501 still shows on the ground test display (after the test), the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
 - (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801

EFFECTIVITY
ARO ALL

27-61 TASK 819

D633W103-ARO

Page 267
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (i) Install the ACE tagged OK in the ACE-C rack location and install the ACE tagged SUSPECT in the ACE-L rack location. To install them, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (j) Remove the tags from the ACEs.
- (2) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers on the center power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121, from the E1-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27117 from the number 2 spoiler power control unit (PCU).
- (d) Visually inspect the DM27117 connector for evidence of corrosion (SPWM 20-10-06)
- (e) Do a wiring check between these pins of connector DM27121AC (for ACE-L1) and connector DM27117 (at the spoiler PCU), (WDM 27-61-11).

NOTE: For flight control PCU wiring, a short between contacts is a resistance of 50,000 Ohms or less.

DM27121AC	DM27117
pin C7	pin 3
pin C8	pin 10
pin A7	pin 7
pin A8	pin 8
pin C9	pin 1
pin A9	pin 5
pin B9	pin 6

- 1) Check each individual pin 1, 3, 5, 6, 7, 8 and 10 for shorts to ground.
- 2) Check for shorts between pins 1, 3, 5, 6, 7, 8 and 10.
- (f) If you find evidence of corrosion at the DM27117 or a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27117 to the number 2 spoiler PCU.
 - 3) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-61 TASK 819

D633W103-ARO

Page 268
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 2,13 System.

- Push the speedbrake lever forward to make sure that it is in the DOWN position.
- If the maintenance message does not show on the ground test display, you corrected the fault.

(g) If you do not find a problem with the wiring, then continue.

- (3) Replace the number 2 spoiler PCU, M27117. Do these tasks: Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

- (4) Install the ACE tagged SUSPECT in the ACE-L1 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Close these circuit breakers on PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 2,13 System.

- Push the speedbrake lever forward to make sure that it is in the DOWN position.
- If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

820. Spoiler Power Control Unit (3) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11502.

EFFECTIVITY
ARO ALL

27-61 TASKS 819-820

D633W103-ARO

Page 269
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you corrected the fault, then perform the fault isolation task specified in the Maintenance Message Index.

 - (a) Put a tag that reads "SUSPECT" on the right actuator control electronics (ACE-R).
 - (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
 - (c) Remove the ACE-C and the ACE-R. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-R rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.
- (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
- (f) If the maintenance message 27-11502 does not show on the ground test display (after the test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.
- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.

EFFECTIVITY
ARO ALL

27-61 TASK 820

D633W103-ARO

Page 270
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If the maintenance message 27-11502 still shows on the ground test display (after the test), the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- (i) Install the ACE tagged OK in the ACE-C rack location and install the ACE tagged SUSPECT in the ACE-R rack location. To install them, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (j) Remove the tags from ACEs.
- (2) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Disconnect connector DM27118 from the number 3 spoiler power control unit (PCU).
- (c) Visually inspect the connector for evidence of corrosion (SPWM 20-10-06)
- (d) Do a wiring check between these pins of connector DM27221AC (for ACE-R) and connector DM27118 (at the spoiler PCU), (WDM 27-61-17).

NOTE: For flight control PCU wiring, a short between contacts is a resistance of 50,000 Ohms or less.

DM27221AC	DM27118
pin C7	pin 3
pin C8	pin 10
pin A7	pin 7
pin A8	pin 8
pin C9	pin 1
pin A9	pin 5
pin B9	pin 6

- 1) Check each individual pin 1, 3, 5, 6, 7, 8 and 10 for shorts to ground.
- 2) Check for shorts between pins 1, 3, 5, 6, 7, 8 and 10.
- (e) If you find an evidence of corrosion at the DM27118 connector or a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27118 to the number 3 spoiler PCU.

EFFECTIVITY
ARO ALL

27-61 TASK 820

D633W103-ARO

Page 271
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Remove the tag from ACE-R.
- 5) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (3) Replace the number 3 spoiler PCU, M27118. Do these tasks: Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801 Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
- (4) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-61 TASK 820

D633W103-ARO

Page 272
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

821. Spoiler Power Control Unit (4) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11503.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
 - (a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you corrected the fault, then perform the fault isolation task specified in the Maintenance Message Index.

 - (a) Put a tag that reads "SUSPECT" on the left actuator control electronics (ACE-L2).
 - (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
 - (c) Remove the ACE-C and the ACE-L2. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-L2 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

 - (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
 - (f) If the maintenance message 27-11503 does not show on the ground test display (after the test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

EFFECTIVITY
ARO ALL

27-61 TASK 821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 273
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If the maintenance message 27-11503 still shows on the ground test display (after the test), the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
 - (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (i) Install the ACE tagged OK in the ACE-C rack location and the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (j) Remove the tags from ACEs.
- (2) Do this check of the excitation and feedback wiring:
- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27119 from the number 4 spoiler power control unit (PCU).
- (d) Visually inspect the DM27119 connector for evidence of corrosion (SPWM 20-10-06)
- (e) Do a wiring check between these pins of connector DM27122AA (for ACE-L2) and connector DM27119 (at the spoiler PCU), (WDM 27-61-13).

NOTE: For flight control PCU wiring, a short between contacts is a resistance of 50,000 Ohms or less.

DM27122AA	DM27119
pin H5	pin 3
pin H6	pin 10
pin K5	pin 7
pin K6	pin 8
pin H7	pin 1
pin K7	pin 5
pin J7	pin 6

- 1) Check each individual pin 1, 3, 5, 6, 7, 8 and 10 for shorts to ground.
- 2) Check for shorts between pins 1, 3, 5, 6, 7, 8 and 10.

EFFECTIVITY
ARO ALL

27-61 TASK 821

D633W103-ARO

Page 274
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) If you find evidence of corrosion or a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27119 to the number 4 spoiler PCU.
 - 3) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (g) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.

- (h) If you do not find a problem with the wiring, then continue.

- (3) Replace the number 4 spoiler PCU, M27119. These are the tasks:

- Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
- Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

- (4) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
- 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-61 TASK 821

D633W103-ARO

Page 275
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

822. Spoiler Power Control Unit (5) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11504.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
 - (a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you corrected the fault, then perform the fault isolation task specified in the Maintenance Message Index.

 - (a) Put a tag that reads "SUSPECT" on the left actuator control electronics (ACE-L2).
 - (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
 - (c) Remove the ACE-C and the ACE-L2. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-L2 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

 - (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
 - (f) If the maintenance message 27-11504 does not show on the ground test display (after the test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

EFFECTIVITY
ARO ALL

27-61 TASK 822

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 276
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If the maintenance message 27-11504 still shows on the ground test display (after the test), the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- (i) Install the ACE tagged OK in the ACE-C rack location and the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (j) Remove the tags from ACEs.
- (2) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27120 from the number 5 spoiler power control unit (PCU).
- (d) Visually inspect the DM27120 connector for evidence of corrosion (SPWM 20-10-06)
- (e) Do a wiring check between these pins of connector DM27122AA (for ACE-L2) and connector DM27120 (at the spoiler PCU), (WDM 27-61-13).

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

DM27122AA	DM27120
pin C7	pin 3
pin C8	pin 10
pin A7	pin 7
pin A8	pin 8
pin C9	pin 1
pin A9	pin 5
pin B9	pin 6

- 1) Check each individual pin 1, 3, 5, 6, 7, 8 and 10 for shorts to ground.
- 2) Check for shorts between pins 1, 3, 5, 6, 7, 8 and 10.

EFFECTIVITY
ARO ALL

27-61 TASK 822

D633W103-ARO

Page 277
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) If you find evidence of corrosion or a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27120 to the number 5 spoiler PCU.
 - 3) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (g) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
- 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

- (h) If you do not find a problem with the wiring, then continue.

- (3) Replace the number 5 spoiler PCU, M27120. These are the tasks:

- Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
- Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

- (4) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5,10 System.

- 1) If the maintenance message does not show on the ground test display, you corrected the fault.

- (5) Replace the number 5 spoiler PCU, M27120. These are the tasks:

- Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
- Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-61 TASK 822

D633W103-ARO

Page 278
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

823. Spoiler Power Control Unit (6) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11505.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you corrected the fault, then perform the fault isolation task specified in the Maintenance Message Index.

 - (a) Put a tag that reads "SUSPECT" on the left-2 actuator control electronics (ACE-L2).
 - (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
 - (c) Remove the ACE-C and the ACE-R. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-R rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

 - (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - (f) If the maintenance message 27-11505 does not show on the ground test display (after the test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

EFFECTIVITY
ARO ALL

27-61 TASK 823

D633W103-ARO

Page 279
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If the maintenance message 27-11505 still shows on the ground test display (after the test), the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
 - (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (i) Install the ACE tagged OK in the ACE-C rack location and the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (j) Remove the tags from the ACEs.
- (2) Do this check of the excitation and feedback wiring:
- (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27114 from the number 6 spoiler power control unit (PCU).
- (d) Visually inspect the DM27114 connector for any evidence of corrosion (SPWM 20-10-06).
- (e) Do a wiring check between these pins of connector DM27221AC (for ACE-R) and connector DM27114 (at the spoiler PCU), (WDM 27-61-17).

NOTE: For flight control PCU wiring, a short between contacts is a resistance of 50,000 Ohms or less.

DM27221AC	DM27114
pin H5	pin 3
pin H6	pin 10
pin K5	pin 7
pin K6	pin 8
pin H7	pin 1
pin K7	pin 5
pin J7	pin 6

- 1) Check each individual pin 1, 3, 5, 6, 7, 8 and 10 for shorts to ground.

EFFECTIVITY
ARO ALL

27-61 TASK 823

D633W103-ARO

Page 280
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Check for shorts between pins 1, 5, 6, 7 and 8.
- (f) If you find evidence of corrosion or a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27114 to the number 6 spoiler PCU.
 - 3) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (3) Replace the number 6 spoiler PCU, M27114. These are the tasks:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
- (4) Install the ACE tagged SUSPECT in the CE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.

EFFECTIVITY
ARO ALL

27-61 TASK 823

D633W103-ARO

Page 281
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

824. Spoiler Power Control Unit (7) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11506.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you corrected the fault, then perform the fault isolation task specified in the Maintenance Message Index.

 - (a) Put a tag that reads "SUSPECT" on the center actuator control electronics (ACE-C).
 - (b) Put a tag that reads "OK" on the right actuator control electronics (ACE-R).
 - (c) Remove the ACE-C and the ACE-R. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (d) Install the ACE tagged SUSPECT in the ACE-R rack location, and install the ACE tagged OK in the ACE-C rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.
- (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8 and 14 System.
- (f) If the maintenance message 27-11506 does not show on the ground test display (after the test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - 2) Install the ACE tagged OK in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Remove the ACE tagged SUSPECT from the airplane.

EFFECTIVITY
ARO ALL

27-61 TASKS 823-824

D633W103-ARO

Page 282
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Install a new ACE in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: Make sure you do the ACE Installation Test.
 - 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8 and 14 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If the maintenance message 27-11506 still shows on the ground test display (after the test), the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
 - (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (i) Install the ACE tagged OK in the ACE-R rack location and the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (j) Remove the tags from the ACEs.
- (2) Do this check of the excitation and feedback wiring:
- (a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27115 from the number 7 spoiler power control unit (PCU).
- (d) Visually inspect the DM27115 connector for any evidence of corrosion (SPWM 20-10-06).
- (e) Do a wiring check between these pins of connector DM27321AA (for ACE-C) and connector DM27115 (at the spoiler PCU) (WDM 27-61-15):

NOTE: For flight control PCU wiring, a short between contacts is a resistance of 50,000 Ohms or less.

EFFECTIVITY
ARO ALL

27-61 TASK 824

D633W103-ARO

Page 283
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27321AA

pin H5	.....	pin 3
pin H6	.....	pin 10
pin K5	.....	pin 7
pin K6	.....	pin 8
pin H7	.....	pin 1
pin K7	.....	pin 5
pin J7	.....	pin 6

DM27115

- 1) Check each individual pin 1, 3, 5, 6, 7, 8 and 10 for shorts to ground.
- 2) Check for shorts between pins 1, 3, 5, 6, 7, 8 and 10.
- (f) If you find evidence of corrosion or a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27115 to the number 7 spoiler PCU.
 - 3) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (3) Replace the number 7 spoiler PCU, M27115. These are the tasks:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
- (4) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU

EFFECTIVITY
ARO ALL

27-61 TASK 824

D633W103-ARO

Page 284
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
- 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

825. Spoiler Power Control Unit (8) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11507.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
 - (a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):
- NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you corrected the fault, then perform the fault isolation task specified in the Maintenance Message Index.
- (a) Put a tag that reads "SUSPECT" on the center actuator control electronics (ACE-C).
 - (b) Put a tag that reads "OK" on the right actuator control electronics (ACE-R).
 - (c) Remove the ACE-C and the ACE-R. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801

EFFECTIVITY
ARO ALL

27-61 TASKS 824-825

D633W103-ARO

Page 285
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Install the ACE tagged SUSPECT in the ACE-R rack location, and install the ACE tagged OK in the ACE-C rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8 and 14 System.
- (f) If the maintenance message 27-11507 does not show on the ground test display (after the test), the ACE tagged SUSPECT is faulty. Do these steps:
- 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - 2) Install the ACE tagged OK in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8 and 14 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If the maintenance message 27-11507 still shows on the ground test display (after the test), the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
 - (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (i) Install the ACE tagged OK in the ACE-R rack location and the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (j) Remove the tags from the ACEs.
- (2) Do this check of the excitation and feedback wiring:
- (a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

EFFECTIVITY
ARO ALL

27-61 TASK 825

D633W103-ARO

Page 286
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27215 from the number 8 spoiler power control unit (PCU).
- (d) Visually inspect the DM27215 connector for any evidence of corrosion (SPWM 20-10-06).
- (e) Do a wiring check between these pins of connector DM27321AC (for ACE-C) and connector DM27215 (at the spoiler PCU) (WDM 27-61-15).

NOTE: For flight control PCU wiring, a short between contacts is a resistance of 50,000 Ohms or less.

DM27321AC	DM27215
pin H5	pin 3
pin H6	pin 10
pin K5	pin 7
pin K6	pin 8
pin H7	pin 1
pin K7	pin 5
pin J7	pin 6

- 1) Check each individual pin 1, 3, 5, 6, 7, 8 and 10 for shorts to ground.
- 2) Check for shorts between pins 1, 3, 5, 6, 7, 8 and 10.
- (f) If you find evidence of corrosion or a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27215 to the number 8 spoiler PCU.
 - 3) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (3) Replace the number 8 spoiler PCU, M27115. These are the tasks:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801

EFFECTIVITY
ARO ALL

27-61 TASK 825

D633W103-ARO

Page 287
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
- (4) Install the ACE tagged SUSPECT in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Close these circuit breakers on PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1, 7, 8, 14 System.
 - 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

826. Spoiler Power Control Unit (9) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11508.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - (a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you corrected the fault, then perform the fault isolation task specified in the Maintenance Message Index.

- (a) Put a tag that reads "SUSPECT" on the right actuator control electronics (ACE-R).
- (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).

EFFECTIVITY
ARO ALL

27-61 TASKS 825-826

D633W103-ARO

Page 288
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Remove the ACE-C and the ACE-R. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-R rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.
 - (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - (f) If the maintenance message 27-11508 does not show on the ground test display (after the test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
NOTE: Make sure you do the ACE Installation Test.
 - 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If the maintenance message 27-11508 still shows on the ground test display (after the test), the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
 - (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - (i) Install the ACE tagged OK in the ACE-C rack location and the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (j) Remove the tags from the ACEs.
- (2) Do this check of the excitation and feedback wiring:
- (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU

EFFECTIVITY
ARO ALL

27-61 TASK 826

D633W103-ARO

Page 289
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27214 from the number 9 spoiler power control unit (PCU).
- (d) Visually inspect the DM27214 connector for any evidence of corrosion (SPWM 20-10-06)
- (e) Do a wiring check between these pins of connector DM27221AC (for ACE-R) and connector DM27214 (at the spoiler PCU), (WDM 27-61-17):

NOTE: For flight control PCU wiring, a short between contacts is a resistance of 50,000 Ohms or less.

DM27221AA	DM27218
pin C7	pin 3
pin C8	pin 10
pin A7	pin 7
pin A8	pin 8
pin C9	pin 1
pin A9	pin 5
pin B9	pin 6

- 1) Check each individual pin 1, 3, 5, 6, 7, 8 and 10 for shorts to ground.
- 2) Check for shorts between pins 1, 3, 5, 6, 7, 8 and 10.
- (f) If you find evidence of corrosion or a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27214 to the number 9 spoiler PCU.
 - 3) Install the ACE tagged SUSPECT in the ACE-R rack location.. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 System.
- 6) Push the speedbrake lever forward to make sure that it is in the DOWN position.

EFFECTIVITY
ARO ALL

27-61 TASK 826

D633W103-ARO

Page 290
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.
- (3) Replace the number 9 spoiler PCU, M27114. These are the tasks:
- Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
- (4) Install the ACE tagged SUSPECT in the ACE-R rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3, 6, 9, 12 system.
- 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

827. Spoiler Power Control Unit (10) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11509.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
- (a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
- 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

EFFECTIVITY
ARO ALL

27-61 TASKS 826-827

D633W103-ARO

Page 291
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Do this exchange check of the actuator control electronics (ACEs):

NOTE: It is possible that other maintenance messages will show when you exchange the ACEs. Ignore the other messages. If they continue to show after you corrected the fault, then perform the fault isolation task specified in the Maintenance Message Index.

- (a) Put a tag that reads "SUSPECT" on the left actuator control electronics (ACE-L2).
- (b) Put a tag that reads "OK" on the center actuator control electronics (ACE-C).
- (c) Remove the ACE-C and the ACE-L2. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- (d) Install the ACE tagged SUSPECT in the ACE-C rack location, and install the ACE tagged OK in the ACE-L2 rack location. To install each one, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: It is not necessary to do the ACE Installation Test until you install the ACEs later in this task.

- (e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
- (f) If the maintenance message 27-11509 does not show on the ground test display (after the test), the ACE tagged SUSPECT is faulty. Do these steps:
 - 1) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - 2) Install the ACE tagged OK in the ACE-C rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Remove the ACE tagged SUSPECT from the airplane.
 - 4) Install a new ACE in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

NOTE: Make sure you do the ACE Installation Test.

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (g) If the maintenance message 27-11509 still shows on the ground test display (after the test), the ACE tagged SUSPECT is not faulty. Continue with step (h) below.
- (h) Remove the ACE tagged SUSPECT and the ACE tagged OK. To remove each one, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- (i) Install the ACE tagged OK in the ACE-C rack location and the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (j) Remove the tags from the ACEs.

- (2) Do this check of the excitation and feedback wiring:

EFFECTIVITY
ARO ALL

27-61 TASK 827

D633W103-ARO

Page 292
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the Left 2 actuator control electronics (ACE-L2), M27122, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27220 from the number 10 spoiler power control unit (PCU).
- (d) Visually inspect the DM27220 connector for evidence of corrosion (SPWM 20-10-06)
- (e) Do a wiring check between these pins of connector DM27122AC (for ACE-L2) and connector DM27220 (at the spoiler PCU), (WDM 27-61-13):

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

DM27122AC	DM27220
pin C7	pin 3
pin C8	pin 10
pin A7	pin 7
pin A8	pin 8
pin C9	pin 1
pin A9	pin 5
pin B9	pin 6

- 1) Check each individual pin 1, 3, 5, 6, 7, 8 and 10 for shorts to ground.
 - 2) Check for shorts between pins 1, 3, 5, 6, 7, 8 and 10.
- (f) If you find evidence of corrosion or a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27220 to the number 10 spoiler PCU.
 - 3) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (g) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

EFFECTIVITY
ARO ALL

27-61 TASK 827

D633W103-ARO

Page 293
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 system.
- 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.
- (h) If you do not find a problem with the wiring, then continue.
- (3) Replace the number 10 spoiler PCU, M27220. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
- (4) Install the ACE tagged SUSPECT in the ACE-L2 rack location. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 5, 10 system.
 - 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

828. Spoiler Power Control Unit (4) or (11) Solenoid Operated Valve Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10514.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4,11 System.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-61 TASKS 827-828

D633W103-ARO

Page 294
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Exchange the ACE for M27122. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4,11 System.
 - 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the power wiring:

NOTE: This message only occurs if the solenoid operated valve (SOV) on both the 4 and 11 spoiler do not operate. Thus, this procedure only does a check of the wiring that is used by both SOVs.

 - (a) Do a check for 28V DC from TB1101, QB41, to structure ground (WDM 27-11-18).
 - (b) If there is not 28V DC at TB1101, QB41, then do these steps:
 - 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11

- 2) Repair the wiring between TB1101, QB41, and the load terminal of circuit breaker C27610 (WDM 27-11-18):

C27610	TB1101
term 2	QB41

- 3) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11

EFFECTIVITY
ARO ALL

27-61 TASK 828



777-200/300 FAULT ISOLATION MANUAL

- 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4,11 System.
- 5) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- 6) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

829. Gear Not Tilt Signals from PSEU 1 and PSEU 2 Do Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-18850.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

NOTE: The RESET LATCH may display on the MAT during the System Test if there is an existing fault. Select RESET LATCH to reset the fault and continue the test.

- (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) To verify that the cause of the fault is not latent, do this task: Test of the Truck Tilt Sensor, AMM TASK 32-61-03-700-801. Disregard any MAT instructions to cycle the landing gear.

C. Fault Isolation Procedure

- (1) Look at the Extended Maintenance, Existing Faults display on the MAT.
 - (a) If a maintenance messages related to PSEU 1 or PSEU 2 shows in Existing Faults, then do these steps:
 - 1) Find the message in the applicable FIM Maintenance Message Index.
 - 2) Do the specified task for the maintenance message.
 - 3) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 4) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 5) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 6) If the maintenance message (27-18850) does not show on the ground test display, you corrected the fault.
 - 7) If the maintenance message shows on the ground test display, then continue.
 - (b) If a maintenance message related to PSEU 1 or PSEU 2 does not show in Existing Faults, then continue.

EFFECTIVITY
ARO ALL

27-61 TASKS 828-829

D633W103-ARO

Page 296
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) Replace the circuit card assembly (CCA), Communication, A1, in the proximity sensor electronics unit (PSEU) 1, M32021. These are the tasks:
 - PSEU Circuit Card Removal, AMM TASK 32-08-02-000-801
 - PSEU Circuit Card Installation, AMM TASK 32-08-02-400-801
 -
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the CCA, Communication, A17, in PSEU 2, M32025. These are the tasks:
 - PSEU Circuit Card Removal, AMM TASK 32-08-02-000-801
 - PSEU Circuit Card Installation, AMM TASK 32-08-02-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the CCA, Communication, A2, in PSEU 1, M32021. These are the tasks:
 - PSEU Circuit Card Removal, AMM TASK 32-08-02-000-801
 - PSEU Circuit Card Installation, AMM TASK 32-08-02-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (5) Replace the CCA, Communication, A2, in PSEU 2, M32025. These are the tasks:
 - PSEU Circuit Card Removal, AMM TASK 32-08-02-000-801
 - PSEU Circuit Card Installation, AMM TASK 32-08-02-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.

EFFECTIVITY
ARO ALL

27-61 TASK 829

D633W103-ARO

Page 297
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- 3) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- 4) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

830. Speedbrake Lever Does Not Move Freely - Fault Isolation

A. Initial Evaluation

- (1) Move the speedbrake lever.
 - (a) If the speedbrake lever does not move freely, then do the Fault Isolation Procedure below.
 - (b) If the speedbrake lever moves freely, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) Apply a small quantity of grease, D00014 to the detent plate for the speedbrake lever.
 - (a) If the speedbrake lever moves freely, you corrected the fault.
 - (b) If the speedbrake lever does not move freely, then continue.
- (2) Remove the speedbrake lever transducer, M27029. To remove it, do this task: Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-000-801.
 - (a) If the speedbrake lever moves freely, then do these steps:
 - 1) Install a new speedbrake lever transducer, M27029. To install it, do this task: Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801.
 - 2) If the speedbrake lever moves freely, you corrected the fault.
 - (b) If the speedbrake lever does not move freely, then continue.
 - (c) Re-install the speedbrake lever transducer, M27029. To install it, do this task: Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801.
- (3) Disconnect the rod between the speedbrake lever and auto speedbrake clutch.
 - (a) If the speedbrake lever moves freely, then do these steps:
 - 1) Replace the auto speedbrake clutch. These are the tasks:
 - Auto Speedbrake Clutch Removal, AMM TASK 27-62-02-000-802
 - Auto Speedbrake Clutch Installation, AMM TASK 27-62-02-400-802
 - 2) Re-connect the rod between the speedbrake lever and auto speedbrake clutch.
 - 3) If the speedbrake lever moves freely, you corrected the fault.
 - (b) If the speedbrake lever does not move freely, then do these steps:
 - 1) Replace the speedbrake lever. These are the tasks:
 - Speedbrake Lever Removal, AMM TASK 27-61-01-000-801
 - Speedbrake Lever Installation, AMM TASK 27-61-01-400-801
 - 2) Re-connect the rod between the speedbrake lever and auto speedbrake clutch.
 - 3) If the speedbrake lever moves freely, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-61 TASKS 829-830

D633W103-ARO

Page 298
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

831. Spoiler Panel Floats - Fault Isolation

A. Fault Isolation Procedure

- (1) For the spoiler 4 or 11, adjust the control cable. To adjust it, do this task: Control Cable Adjustment (Rigging) for Spoilers 4 and 11, AMM TASK 27-61-00-820-801.
- (2) Perform a test of the spoiler PCU extend check valve and thermal relief valve by doing the following steps:
 - (a) Extend the trailing edge flaps completely. To extend, do this task: Extend the Trailing Edge Flaps, AMM TASK 27-51-00-860-804.
 - (b) Ensure the manual release cam is in the NORMAL position.
 - (c) Do this task: Main Hydraulic System and the Reservoir Depressurization, AMM TASK 29-11-00-860-807.
 - (d) Apply a moderate force of 25 to 50 lbs (111 to 222 newtons) upward on the center of the spoiler panel.
 - (e) If the spoiler 4 or 11 does not move up (float), you corrected the fault.
 - (f) If the spoiler 4 or 11 floats, then continue.
 - (g) Do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (h) Do this task: Retract the Trailing Edge Flaps, AMM TASK 27-51-00-860-805.
- (3) Replace the spoiler power control unit (PCU):
 - (a) For the inboard spoilers, these are the tasks:
 - Inboard Spoiler Power Control Units (PCUs) - Removal, AMM TASK 27-61-07-000-801
 - Inboard Spoiler Power Control Units (PCU) - Installation, AMM TASK 27-61-07-400-801
 - (b) For the outboard spoilers, These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
- (4) Perform a test of the spoiler PCU extend check valve and thermal relief valve by doing the following steps:
 - (a) Extend the trailing edge flaps completely. To extend, do this task: Extend the Trailing Edge Flaps, AMM TASK 27-51-00-860-804.
 - (b) Ensure the manual release cam is in the NORMAL position.
 - (c) Do this task: Main Hydraulic System and the Reservoir Depressurization, AMM TASK 29-11-00-860-807.
 - (d) Apply a moderate force of 25 to 50 lbs (111 to 222 newtons) upward on the center of the spoiler panel.
 - 1) If the spoiler does not move up (float), you corrected the fault.
 - a) Do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - b) Do this task: Retract the Trailing Edge Flaps, AMM TASK 27-51-00-860-805.
 - 2) If the spoiler floats, then continue with the Fault Isolation Procedure.
- (5) Replace the actuator control electronics (ACE) for the applicable spoiler:
 - (a) For the spoiler 2 or 13, replace the left 1 actuator control electronics, M24121. These are the tasks:

EFFECTIVITY
ARO ALL

27-61 TASK 831

D633W103-ARO

Page 298.1
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (b) For the spoiler 4, 5, 10, or 11, replace the left 2 actuator control electronics, M24122. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (c) For the spoiler 1, 7, 8, or 14, replace the center actuator control electronics, M24321. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (d) For the spoiler 3, 6, 9, or 12, replace the right actuator control electronics, M24221. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (e) If the spoiler does not float, you corrected the fault.

————— END OF TASK —————

832. Spoiler Power Control Unit (12) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11511.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
 - (a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU

EFFECTIVITY
ARO ALL

27-61 TASKS 831-832

D633W103-ARO

Page 298.2
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27218 from the number 12 spoiler power control unit (PCU).
- (d) Do a wiring check between these pins of connector DM27221AA at the E5-2 shelf and connector DM27218 at the spoiler PCU, M27218 (WDM 27-61-17):

DM27221AA	DM27218
pin A8	pin 8
pin A7	pin 7
pin A9	pin 5
pin C9	pin 1
pin B9	pin 6

- 1) Check for shorts to ground for pins 1, 5, 6, 7 and 8.
 - 2) Check for shorts between pins 1, 5, 6, 7 and 8.
 - 3) Check for shorts between pin 3 and pins 1, 5, 6, 7 and 8.
 - 4) Check for shorts between pin 10 and pins 1, 5, 6, 7 and 8.
- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27218 to the spoiler PCU.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
- 6) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - a) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-61 TASK 832

D633W103-ARO

Page 298.3
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-R, M27221. To install it, these are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Close these circuit breakers on the PSA-R, M24201:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
- 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
- NOTE:** For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
- (a) If a fault is found, replace the applicable PCU.
- (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
- (c) If a fault is found, repair or replace the applicable wiring.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the number 12 spoiler PCU, M27218. These are the tasks:
- Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
- 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-61 TASK 832

D633W103-ARO

Page 298.4
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

833. Spoiler Power Control Unit (13) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11512.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 2,13 System.
 - (a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers on the left power supply assembly (PSA-L), M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the left 1 actuator control electronics (ACE-L1), M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27217 from the number 13 spoiler power control unit (PCU).
- (d) Do a wiring check between these pins of connector DM27121AA at the E1-5 shelf and connector DM27217 at the spoiler PCU, M27217 (WDM 27-61-11):

DM27121AA	DM27217
pin A8	pin 8
pin A7	pin 7
pin A9	pin 5
pin C9	pin 1
pin B9	pin 6

- 1) Check for shorts to ground for pins 1, 5, 6, 7 and 8.

EFFECTIVITY
ARO ALL

27-61 TASK 833

D633W103-ARO

Page 298.5
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Check for shorts between pins 1, 5, 6, 7 and 8.
 - 3) Check for shorts between pin 3 and pins 1, 5, 6, 7 and 8.
 - 4) Check for shorts between pin 10 and pins 1, 5, 6, 7 and 8.
- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27218 to the spoiler PCU.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 2,13 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-L1, M27121. To install it, these are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Close these circuit breakers on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, Spoiler 2,13 System.
 - 1) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-61 TASK 833

D633W103-ARO

Page 298.6
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)
NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.
 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the number 13 spoiler PCU, M27217. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 3,6,9,12 System.
 - 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

834. Spoiler Power Control Unit (14) Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-11513.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1,7,8,14 System.
 - (a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (c) If the maintenance message does not show on the ground test display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:

EFFECTIVITY
ARO ALL

27-61 TASKS 833-834

D633W103-ARO

Page 298.7
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27216 from the number 14 spoiler power control unit (PCU).
- (d) Do a wiring check between these pins of connector DM27321AC at the E2-5 shelf and connector DM27216 at the spoiler PCU, M27216 (WDM 27-61-15):

<u>DM27321AC</u>	<u>DM27216</u>
pin A8	pin 8
pin A7	pin 7
pin A9	pin 5
pin C9	pin 1
pin B9	pin 6

- 1) Check for shorts to ground for pins 1, 5, 6, 7 and 8.
 - 2) Check for shorts between pins 1, 5, 6, 7 and 8.
 - 3) Check for shorts between pin 3 and pins 1, 5, 6, 7 and 8.
 - 4) Check for shorts between pin 10 and pins 1, 5, 6, 7 and 8.
- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27216 to the spoiler PCU.
 - 3) Re-install the ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

EFFECTIVITY
ARO ALL

27-61 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.8
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1,7,8,14 System.
 - a) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27321. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Close these circuit breakers on the PSA-C, M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, Spoiler 1,7,8,14 System.
 - 1) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 3) If the maintenance message shows on the ground test display, then continue.
- (3) Do this task for obvious electrical faults in the applicable PCU wiring: (Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801)

NOTE: For flight control PCU wiring, a short is considered a resistance of 50,000 Ohms or less.

 - (a) If a fault is found, replace the applicable PCU.
 - (b) If no faults are found with the PCU wiring, then do this task to check for applicable PCU airplane wiring: (Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802)
 - (c) If a fault is found, repair or replace the applicable wiring.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (4) Replace the number 14 spoiler PCU, M27216. These are the tasks:
 - Outboard Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-08-000-801
 - Outboard Spoiler Power Control Unit (PCU) - Installation, AMM TASK 27-61-08-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 1,7,8,14 System.

EFFECTIVITY
ARO ALL

27-61 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.9
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) MPush the speedbrake lever forward to make sure that it is in the DOWN position.
- 2) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

835. Speedbrake Lever Transducer Assembly, No. 2 Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12301.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27121, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27029B (the connector for the speedbrake lever transducer) at disconnect panel AEO160.

NOTE: The disconnect panel is in the area forward of the nose landing gear wheel well.
- (d) Do a wiring check between these pins of connector DM27122AC (for ACE-L2) and connector DM27029B (for the speedbrake lever transducer), (WDM 27-61-13):

EFFECTIVITY
ARO ALL

27-61 TASKS 834-835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.10
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27122AC

pin D4
pin E4
pin D5
pin E6
pin E5

DM27029B

pin 9
pin 8
pin 5
pin 1
pin 6

(e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM27029B for the speedbrake lever transducer.
- 3) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

- a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- c) If the maintenance message does not show on the ground test display, you corrected the fault.

(f) If you do not find a problem with the wiring, then continue.

(2) Install a new ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

(a) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

(b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

EFFECTIVITY
ARO ALL

27-61 TASK 835

D633W103-ARO

Page 298.11
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the speedbrake lever transducer, M27029. These are the tasks:
- Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-000-801
 - Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

836. Speedbrake Lever Transducer Assembly, No. 3 Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12302.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:
 - (a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU

EFFECTIVITY
ARO ALL

27-61 TASKS 835-836

D633W103-ARO

Page 298.12
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the right actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27029C (the connector for the speedbrake lever transducer) at disconnect panel AEO160.

NOTE: The disconnect panel is in the area forward of the nose landing gear wheel well.

- (d) Do a wiring check between these pins of connector DM27321AC (for ACE-C) and connector DM27029C (for the speedbrake lever transducer), (WDM 27-61-15):

DM27321AC		DM27029C	
pin D4	.....	pin 9	
pin E4	.....	pin 8	
pin D5	.....	pin 5	
pin E6	.....	pin 1	
pin E5	.....	pin 6	

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27029C for the speedbrake lever transducer.
 - 3) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.

EFFECTIVITY
ARO ALL

27-61 TASK 836

D633W103-ARO

Page 298.13
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- c) If the maintenance message does not show on the ground test display, you corrected the fault.
- f) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27331. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (a) Close these circuit breakers on PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the speedbrake lever transducer, M27029. These are the tasks:
 - Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-000-801
 - Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

837. Speedbrake Lever Transducer Assembly, No. 4 Position Transducer Feedback Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12303.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

EFFECTIVITY
ARO ALL

27-61 TASKS 836-837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.14
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the excitation and feedback wiring:

- (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
 - (c) Disconnect connector DM27029D (the connector for the speedbrake lever transducer) at disconnect panel AEO160.
- NOTE:** The disconnect panel is in the area forward of the nose landing gear wheel well.

 - (d) Do a wiring check between these pins of connector DM27221AC (for ACE-R) and connector DM27029D (for the speedbrake lever transducer), (WDM 27-61-17):

DM27221AC	DM27029D
pin D4	pin 9
pin E4	pin 8
pin D5	pin 5
pin E6	pin 1
pin E5	pin 6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27029D for the speedbrake lever transducer.
 - 3) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-61 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.15
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

- Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- Push the speedbrake lever forward to make sure that it is in the DOWN position.
- If the maintenance message does not show on the ground test display, you corrected the fault.

- (f) If you do not find a problem with the wiring, then continue.

- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

- (a) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

- Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- Push the speedbrake lever forward to make sure that it is in the DOWN position.
- If the maintenance message does not show on the ground test display, you corrected the fault.
- If the maintenance message shows on the ground test display, then continue.

- (3) Replace the speedbrake lever transducer, M27029. These are the tasks:

- Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-000-801
- Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801

EFFECTIVITY
ARO ALL

27-61 TASK 837

D633W103-ARO

Page 298.16
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

838. Speedbrake Lever Transducer Assembly, No. 2 Transducer Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12305.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
 - (a) Open these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Remove the left 2 actuator control electronics (ACE-L2), M27121, from the E1-1 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27029B (the connector for the speedbrake lever transducer) at disconnect panel AEO160.

NOTE: The disconnect panel is in the area forward of the nose landing gear wheel well.

EFFECTIVITY
ARO ALL

27-61 TASKS 837-838

D633W103-ARO

Page 298.17
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins of connector DM27122AC (for ACE-L2) and connector DM27029B (for the speedbrake lever transducer), (WDM 27-61-13):

DM27122AC	DM27029B
pin D5	pin 5
pin E5	pin 6

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27029B for the speedbrake lever transducer.
 - 3) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (g) Re-connect connector DM27029B for the speedbrake lever transducer.
- (2) Re-install ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - (a) Close these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

EFFECTIVITY
ARO ALL

27-61 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.18
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (f) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the speedbrake lever transducers, M27029. These are the tasks:
- Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-000-801
 - Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801
- NOTE:** All four of the transducers for the speedbrake lever are in the M27029 assembly. It is not possible to adjust the transducers independently. You must adjust or replace all of the transducers at the same time.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (b) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

839. Speedbrake Lever Transducer Assembly, No. 3 Transducer Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12306.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:

EFFECTIVITY
ARO ALL

27-61 TASKS 838-839

D633W103-ARO

Page 298.19
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the right actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27029C (the connector for the speedbrake lever transducer) at disconnect panel AEO160.
- NOTE:** The disconnect panel is in the area forward of the nose landing gear wheel well.
- (d) Do a wiring check between these pins of connector DM27321AC (for ACE-C) and connector DM27029C (for the speedbrake lever transducer) (WDM 27-61-15):

DM27321AC	DM27029C
pin D5	pin 5
pin E5	pin 6

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DM27029C for the speedbrake lever transducer.
 - 3) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.

EFFECTIVITY
ARO ALL

27-61 TASK 839

D633W103-ARO

Page 298.20
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- c) If the maintenance message does not show on the ground test display, you corrected the fault.
- f) If you do not find a problem with the wiring, then continue.
- g) Re-connect connector DM27029C for the speedbrake lever transducer.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- a) Close these circuit breakers on PSA-C, M24301:

Power Supply Assembly Center, M24301

Row	Col	Number	Name
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- c) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- e) If the maintenance message does not show on the ground test display, you corrected the fault.
- f) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the speedbrake lever transducers, M27029. These are the tasks:
 - Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-000-801
 - Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801

NOTE: All four of the transducers for the speedbrake lever are in the M27029 assembly. It is not possible to adjust the transducers independently. You must adjust or replace all of the transducers at the same time.

- a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- b) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- d) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

840. Speedbrake Lever Transducer Assembly, No. 4 Transducer Position Signal Does Not Agree - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-12307.

EFFECTIVITY
ARO ALL

27-61 TASKS 839-840

D633W103-ARO

Page 298.21
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the feedback wiring:
 - (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Disconnect connector DM27029D (the connector for the speedbrake lever transducer) at disconnect panel AEO160.

NOTE: The disconnect panel is in the area forward of the nose landing gear wheel well.
- (d) Do a wiring check between these pins of connector DM27221AC (for ACE-R) and connector DM27029D (for the speedbrake lever transducer) (WDM 27-61-17):

DM27221AC	DM27029D
pin D5	pin 5
pin E5	pin 6

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector DM27029D for the speedbrake lever transducer.
 - 3) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-61 TASK 840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.22
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

- Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- Push the speedbrake lever forward to make sure that it is in the DOWN position.
- If the maintenance message does not show on the ground test display, you corrected the fault.

(f) If you do not find a problem with the wiring, then continue.

(g) Re-connect connector DM27029D for the speedbrake lever transducer.

- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

- (a) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

(c) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.

(d) Push the speedbrake lever forward to make sure that it is in the DOWN position.

(e) If the maintenance message does not show on the ground test display, you corrected the fault.

(f) If the maintenance message shows on the ground test display, then continue.

- (3) Replace the speedbrake lever transducers, M27029. These are the tasks:

- Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-000-801

EFFECTIVITY
ARO ALL

27-61 TASK 840

D633W103-ARO

Page 298.23
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801

NOTE: All four of the transducers for the speedbrake lever are in the M27029 assembly. It is not possible to adjust the transducers independently. You must adjust or replace all of the transducers at the same time.

- Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- Push the speedbrake lever forward to make sure that it is in the DOWN position.
- If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

841. Spoiler Power Control Unit (4) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10503.

B. Description

- (1) The Spoiler Power Control Unit (PCU)-4 does not follow system commands.

C. Possible Causes

- (1) Spoiler PCU-4 Solenoid Valve
- (2) Wiring
- (3) Spoiler PCU-4, M27119
- (4) ACE (Left 2), M27122
- (5) PCU Control Cables out of adjustment

D. Related Data

- (1) WDM 27-11-18
- (2) WDM 27-61-13

E. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then check for active HYDIM communication maintenance messages (29-18891, 29-18892, 29-18893, or 29-18894) and troubleshoot per associated FIM tasks.
- (3) If the MAT shows LATCHED for the maintenance message and the message is not correlated to a FLT CONTROL SYS or SPOILERS Advisory EICAS message, it should be considered a nuisance message and it can be disregarded.
 - (a) To clear the message, do this task: Uncorrelated Cable-Controlled Spoiler PCU Maintenance Message - Fault Isolation, 27-61 TASK 848.
- (4) If the MAT shows LATCHED for the maintenance message and the message is correlated to a FLT CONTROL SYS or SPOILERS Advisory EICAS message, clear any other correlated messages before you do this Fault Isolation Procedure or Spoiler Power Control Unit (4) Command Problems - Fault Isolation, 27-61 TASK 841 for message 27-10503. Then do the Ground Test below.

EFFECTIVITY
ARO ALL

27-61 TASKS 840-841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.24
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (5) If the MAT shows LATCHED for the maintenance message, then do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
 - (a) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (b) If the maintenance message shows on the Ground Test Display and is uncorrelated to either the FLT CONTROL SYS or SPOILERS EICAS messages, then it may be considered a nuisance message and it can be disregarded.
 - 1) To clear the message, do this task: Uncorrelated Cable-Controlled Spoiler PCU Maintenance Message - Fault Isolation, 27-61 TASK 848.
 - (c) If the maintenance message shows on the Ground Test Display and is correlated to either the FLT CONTROL SYS or SPOILERS EICAS messages, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the Ground Test Display, then there was an intermittent fault.
 - 1) Monitor the airplane to see if the fault occurs on the subsequent flights.
 - 2) If the fault occurs on the subsequent flights, then do this task: Intermittent Fault for Primary Flight Controls - Fault Isolation, 27-98 TASK 803

F. Fault Isolation Procedure

- (1) Do this check of the Spoiler PCU-4:
 - (a) Do the Spoiler Operational Test, AMM TASK 27-61-00-700-801 and monitor the Spoiler #4 position during the task.
 - 1) If the Spoiler #4 position readout is not within limits at one or more of the AMM Task steps, or is intermittent, do a detail visual inspection of the spoiler #4 PCU jumper wire bundle for contamination, corrosion, and damaged pins.
 - 2) If the airplane is pre SB 777-27-0107, replace the existing spoiler PCU jumper wire bundle (P/N 24654-124) with a new design jumper wire bundle (P/N 24654-203) or another jumper wire bundle (P/N 24654-124).
 - 3) If the problem continues, do these tasks to replace the Spoiler PCU-4:
 - Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-000-801
 - Cable-Controlled Spoiler Power Control Unit - Installation, AMM TASK 27-61-09-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - 4) If the Spoiler #4 position readout is within limits at each AMM Task step, then continue.
 - (2) Make sure that the Control Wheels are in the neutral position.
 - (3) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (4) Do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

EFFECTIVITY
ARO ALL

27-61 TASK 841

D633W103-ARO

Page 298.25
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If both Spoiler 11 and Spoiler 4 are not in the down position, remove the Main Hydraulic System Power (Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808). Do a check for 28V DC at Terminal QB41 of TB1101 (WDM 27-11-18).
- 1) If you do not find 28V DC, examine and repair the wiring between the Terminal Block and the FLPRN PCU RIB (BYP) SPLRS 4 & 11 Circuit Breaker, C27610 (WDM 27-11-18).
- a) Do the Repair Confirmation at the end of this task.
- 2) If you find 28V DC, then do these steps:
- a) Pressurize the Main Hydraulic System Power. This is the task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- b) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11

- <1> If Spoiler 11 and Spoiler 4 move to the down position, remove the Main Hydraulic System Power (Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808).
- <2> Disconnect connector DM27119 from the Spoiler PCU-4 (WDM 27-61-13).
- <3> Do a check for an electrical short to structure ground from pin 3 of connector DM27119.
- <4> If you find an electrical short at pin 3 of connector DM27119, exchange the ACEs (Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27).

NOTE: When you swap the ACEs, examine the pins on the LRU connectors and the Rack connectors. Make sure that the pins are not damaged, before you install the ACEs back in the Rack.

- <a> If the problem is corrected, replace the suspect ACE-L2. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- I. Do the Repair Confirmation at the end of this task.
- If the problem continues, disconnect electrical connector DM27122AC from the ACE, M27122 and examine the wiring from the ACE-L2 to Spoiler PCU-11 and PCU-4 as follows (WDM 27-61-13):

DM27219	DM27122AC
pin 3	pin H3

DM27119	DM27122AC
pin 3	pin F4

EFFECTIVITY
ARO ALL

27-61 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.26
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- I. If you find a problem with the wiring, repair it as necessary.
- II. Re-connect connectors DM27119, DM27219 and connector DM27122AC.
- III. Re-install the ACE-L2, M27122. Do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- IV. Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11

- V. Do the Repair Confirmation at the end of this task.

(b) If only Spoiler (4) is not in the down position, continue.

(5) Do a check for 28V DC at Spoiler 4 as follows:

(a) Disconnect connector DM27119 from the Spoiler PCU-4 (WDM 27-61-13).

(b) Do a check for 28V DC at pin 10 of connector DM27119.

1) If you find 28V DC, do a continuity check between pins 3 and 10, at the Spoiler PCU body.

a) If you do not find continuity, replace the Spoiler PCU-4 Solenoid Valve. These are the tasks:

- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Removal, AMM TASK 27-61-14-000-801
- Spoiler PCU Electro-Hydraulic Servo Valve (EHSV) or Solenoid Valve Installation, AMM TASK 27-61-14-400-801

<1> Do the Repair Confirmation at the end of this task.

b) If you find continuity, do this task for obvious electrical faults in the Spoiler PCU-4 wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.

NOTE: For Flight Control PCU Wiring, a short is considered a Resistance of 50000 Ohms or less.

<1> If you find a fault, replace the Spoiler PCU-4. These are the tasks:

- Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-000-801
- Cable-Controlled Spoiler Power Control Unit - Installation, AMM TASK 27-61-09-400-801

<2> If you find no faults with the Spoiler PCU-4 wiring, then do a check of the Spoiler PCU-4 Airplane Wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.

<a> If you find a fault, repair or replace the applicable wiring.

 Do the Repair Confirmation at the end of this task.

EFFECTIVITY
ARO ALL

27-61 TASK 841

D633W103-ARO

Page 298.27
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If you do not find 28V DC at the Spoiler PCU-4, examine the wiring between the Spoiler PCU-4 connector DM27119 and ACE-L2 at the E1-1 shelf as follows (WDM 27-61-13):

- a) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- b) Remove the ACE-L2, M27122. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- c) Do a check of the command wiring as follows:

DM27119	DM27122AC
pin 3	pin F4

- d) Do a check of the feedback wiring as follows:

DM27119	DM27122AA
pin 1	pin H7
pin 5	pin K7
pin 6	pin J7
pin 7	pin K5
pin 8	pin K6

- e) If you find a problem with the wiring, then repair it as necessary.
- f) Re-connect connector DM27119 to the Spoiler PCU-4.
- g) Re-install the ACE-L2, M27122. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- h) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	23	C27613	ELEV FEEL ACTR
K	24	C27612	STAB TRIM ARM-R
K	25	C27611	AIL PCU LIB(BLK)/LOB(BYP)
K	26	C27610	FLPRN PCU RIB(BYP)/SPLR 4&11
K	27	C27609	ELEV PCU RIB(BLK)/ROB(BYP)
K	28	C27608	ACE-L2 PWR

- i) Do the Repair Confirmation at the end of this task.
- (6) If the problem continues, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (7) Use the PFCS MAINTENANCE pages to do a check of the Spoiler rigging.

EFFECTIVITY
ARO ALL

27-61 TASK 841

D633W103-ARO

Page 298.28
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Turn the captain's control wheel counterclockwise until the value for the CAPT WHEEL POSITION 1 is -1.51 to -1.36 on PFCS maintenance page 1. Hold the Control Wheel in that position.
 - (b) Look at the PFCS MAINTENANCE page 2 and make sure that the value for SPOILER POSITION 11 is 1.39 to 1.79.
 - (c) If the value for SPOILER POSITION 4 is 1.39 to 1.79, do these steps:
 - 1) Exchange the ACE for M27122. Do this task: Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27.
NOTE: When you swap the ACEs, examine the pins on the LRU connectors and the Rack connectors. Make sure that the pins are not damaged, before you install the ACEs back in the Rack.
 - 2) Replace the ACE recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - 3) Do the Repair Confirmation at the end of this task.
 - (d) If the value for SPOILER POSITION 4 is not 1.39 to 1.79, then continue.
- (8) Do the Mechanical Spoiler Adjustment and Test (Spoiler Pair 4 and 11), AMM TASK 27-61-00-700-802.
- (a) Adjust, repair or replace defective components as necessary.
 - (b) Do the Repair Confirmation at the end of this task.
- (9) If the problem continues, do a check of the Cable-controlled Spoiler PCU Speedbrake Mode Valve (SMV):
- (a) If the EICAS Messages "SPOILER" (Advisory) and "FLIGHT CONTROL SYS" appear on the EICAS Display, then the PCU is the root cause and following apply:
 - 1) Cable-controlled Spoiler Panels 4, 11 remains deployed after the speedbrake handle is stowed, usually following exposure to a long cold-soak period.
 - 2) Cable-controlled Spoiler Panels exhibiting this condition, operate normally when they warm up, or will return to faired position upon hydraulic shutdown.
 - 3) Cable-controlled Spoiler faults are intermittent and maintenance messages can be cleared.
 - (b) Replace the faulty Spoiler 4, 11 PCU Speedbrake Mode Valve (SMV). These are the tasks:
 - Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-000-801
 - Cable-Controlled Spoiler Power Control Unit - Installation, AMM TASK 27-61-09-400-801.
 - (c) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this Ground Test on the MAT: 27-Primary Flight Controls, System Test, Spoiler 4, 11 System.
- (2) Push the Speedbrake Lever forward to make sure that it is in the DOWN position.
 - (a) If the maintenance message does not show on the Ground Test Display, you corrected the problem.

EFFECTIVITY
ARO ALL

27-61 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.29
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message still shows on the Ground Test Display, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

842. Spoiler Auxiliary Retract Device (Left Wing Door) Signal to ACE-C Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17031.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
- (a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27321AA at the E2-5 and terminal block TB2501 at E2-5 shelf (WDM 27-61-15):

DM27321AA	TB2501
pin G11	QB03

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Close these circuit breakers on PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU

EFFECTIVITY
ARO ALL

27-61 TASKS 841-842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.30
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Close these circuit breakers on PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) If the MAT shows not ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

843. Spoiler Auxiliary Retract Device (Left Wing Door) Signal to ACE-R Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17032.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
 - (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU

EFFECTIVITY
ARO ALL

27-61 TASKS 842-843

D633W103-ARO

Page 298.31
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27221AA at the E5-2 and terminal block TB2501 at E2-5 shelf (WDM 27-61-17):

DM27221AA	TB2501
pin G11	QB03

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM

EFFECTIVITY
ARO ALL

27-61 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.32
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) If the MAT shows not ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

844. Spoiler Auxiliary Retract Device (Right Wing Door) Signal to ACE-C Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17033.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
- (a) Open these circuit breakers on the center power supply assembly (PSA-C), M24301, on the E2-6 shelf:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) Remove the center actuator control electronics (ACE-C), M27321, from the E2-5 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27321AA at the E2-5 and terminal block TB5201 at E5-2 shelf (WDM 27-61-15):

DM27321AA	TB5201
pin J6	QA13

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-install ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.

EFFECTIVITY
ARO ALL

27-61 TASKS 843-844

D633W103-ARO

Page 298.33
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 3) Close these circuit breakers on PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-C, M27321. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Close these circuit breakers on PSA-C, M24301:

Power Supply Assembly Center, M24301

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-C	ACE PWR
A	3	CBA3-C	AIL PCU
A	5	CBA5-C	FLPRN PCU
A	7	CBA7-C	ELEV PCU
A	9	CBA9-C	RUD PCU
B	2	CBB2-C	STAB TRIM
B	6	CBB6-C	ELEV FEEL (C)

- (b) If the MAT shows not ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

END OF TASK

845. Spoiler Auxiliary Retract Device (Right Wing Door) Signal to ACE-R Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17034.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:

EFFECTIVITY
ARO ALL

27-61 TASKS 844-845

D633W103-ARO

Page 298.34
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers on the right power supply assembly (PSA-R), M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the right actuator control electronics (ACE-R), M27221, from the E5-2 shelf. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27221AA at the E5-2 and terminal block TB5201 at E5-2 shelf (WDM 27-61-17):

DM27221AA	TB5201
pin J6	QA13

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (2) Install a new ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Close these circuit breakers on PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU

EFFECTIVITY
ARO ALL

27-61 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.35
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) If the MAT shows not ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— END OF TASK —————

846. Spoiler Auxiliary Retract Device (Left Wing Door) Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17035.

B. Initial Evaluation

- (1) Make sure the mode select switch on the door 3 left is in the MANUAL position.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
- (a) Disconnect connector DS52122 from the mode select switch, S52122 at door 3 left.
- (b) Do a wiring check between these pins of connector DS52122 at the door 3 left and terminal block TB2501 at E2-5 shelf (WDM 27-61-15):

DS52122	TB2501
pin 4	QB03

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-connect connector DS52122.
- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— END OF TASK —————

847. Spoiler Auxiliary Retract Device (Right Wing Door) Signal Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17036.

B. Initial Evaluation

- (1) Make sure the mode select switch on the door 3 right is in the MANUAL position.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure.

EFFECTIVITY
ARO ALL

27-61 TASKS 845-847

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.36
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
- (a) Disconnect connector DS52122 from the mode select switch, S52122 at door 3 right.
 - (b) Do a wiring check between these pins of connector DS52122 at the door 3 right and terminal block TB5201 at E5-2 shelf (WDM 27-61-17):

DS52122	TB5201
pin 4	QA13

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect connector DS52122.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— END OF TASK —————

848. Uncorrelated Cable-Controlled Spoiler PCU Maintenance Message - Fault Isolation

A. Initial Evaluation

- (1) If Maintenance Message 27-10503 or 27-10510 is determined to be a nuisance message, then do the Fault Isolation Procedure below.

B. Fault Isolation Procedure

- (1) Remove the nut, washer, and bolt that hold the cable control rod to the applicable PCU (Cable-Controlled Spoiler Power Control Unit (PCU) - Removal, AMM TASK 27-61-09-000-801).
- (2) Loosely secure the control rod to the cable quadrant with a cord or strap so that no damage will occur when the cable quadrant is rotated.
- (3) Do this task: Supply Electrical Power, AMM TASK 24-22-00-860-805.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (4) Do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (5) Turn the captain's or first officer's control wheel fully counter-clockwise and hold for 20 seconds.
- (6) Turn the captain's or first officer's control wheel fully clockwise and hold for 20 seconds.

EFFECTIVITY
ARO ALL

27-61 TASKS 847-848

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.37
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (7) Return the control wheel to center.
- (8) Reconnect the PCU control rod (Cable-Controlled Spoiler Power Control Unit - Installation, AMM TASK 27-61-09-400-801).
- (9) An EICAS message will be set that is correlated to the maintenance message. Perform the related FIM procedure to clear the maintenance message.

———— **END OF TASK** ————

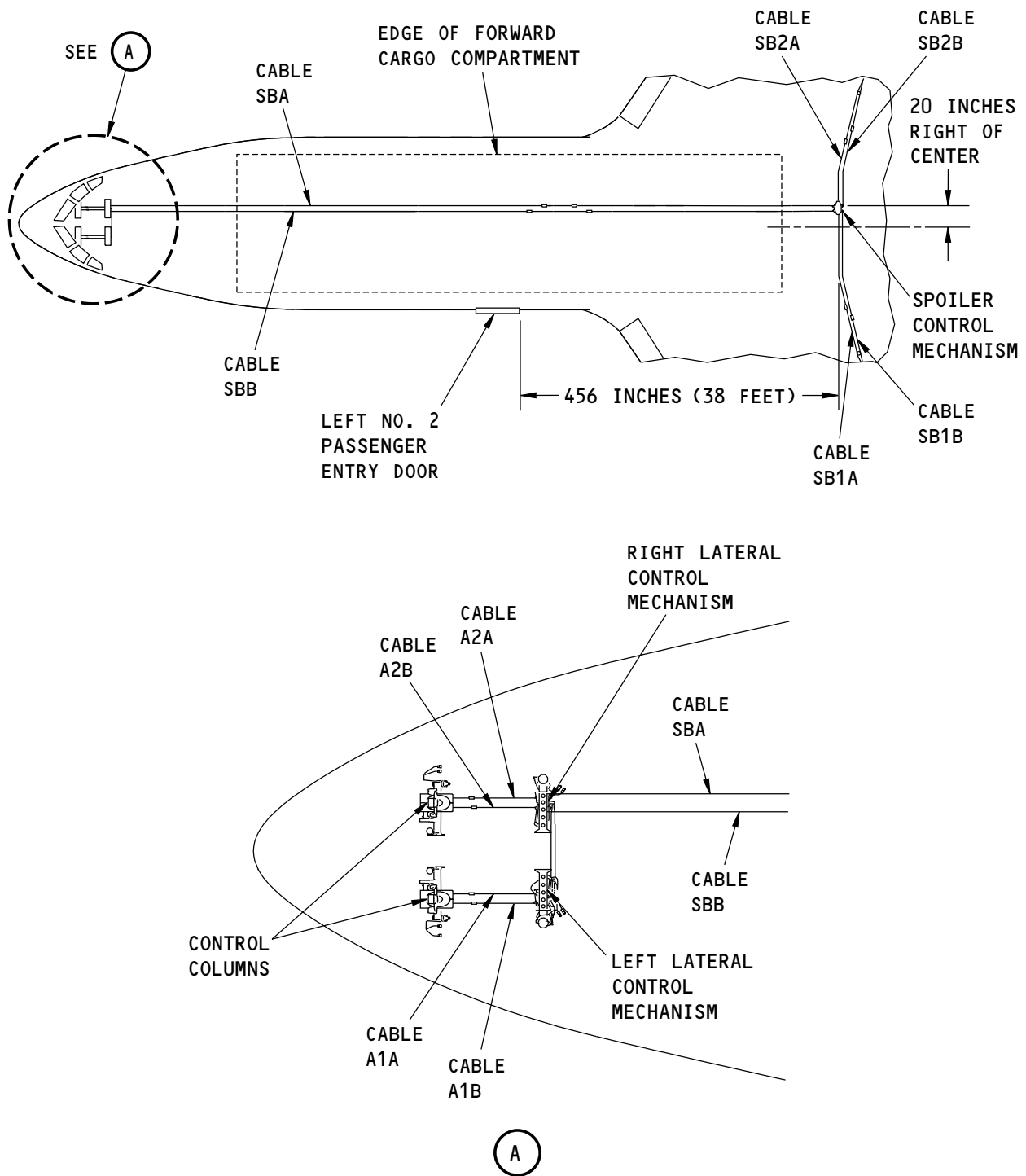
EFFECTIVITY
ARO ALL

27-61 TASK 848

D633W103-ARO

Page 298.38
Sep 05/2017

777-200/300 FAULT ISOLATION MANUAL



E32306 S0006698764_V2

Mechanical Spoiler Cable Location
Figure 301/27-61-00-990-801

EFFECTIVITY
ARO ALL

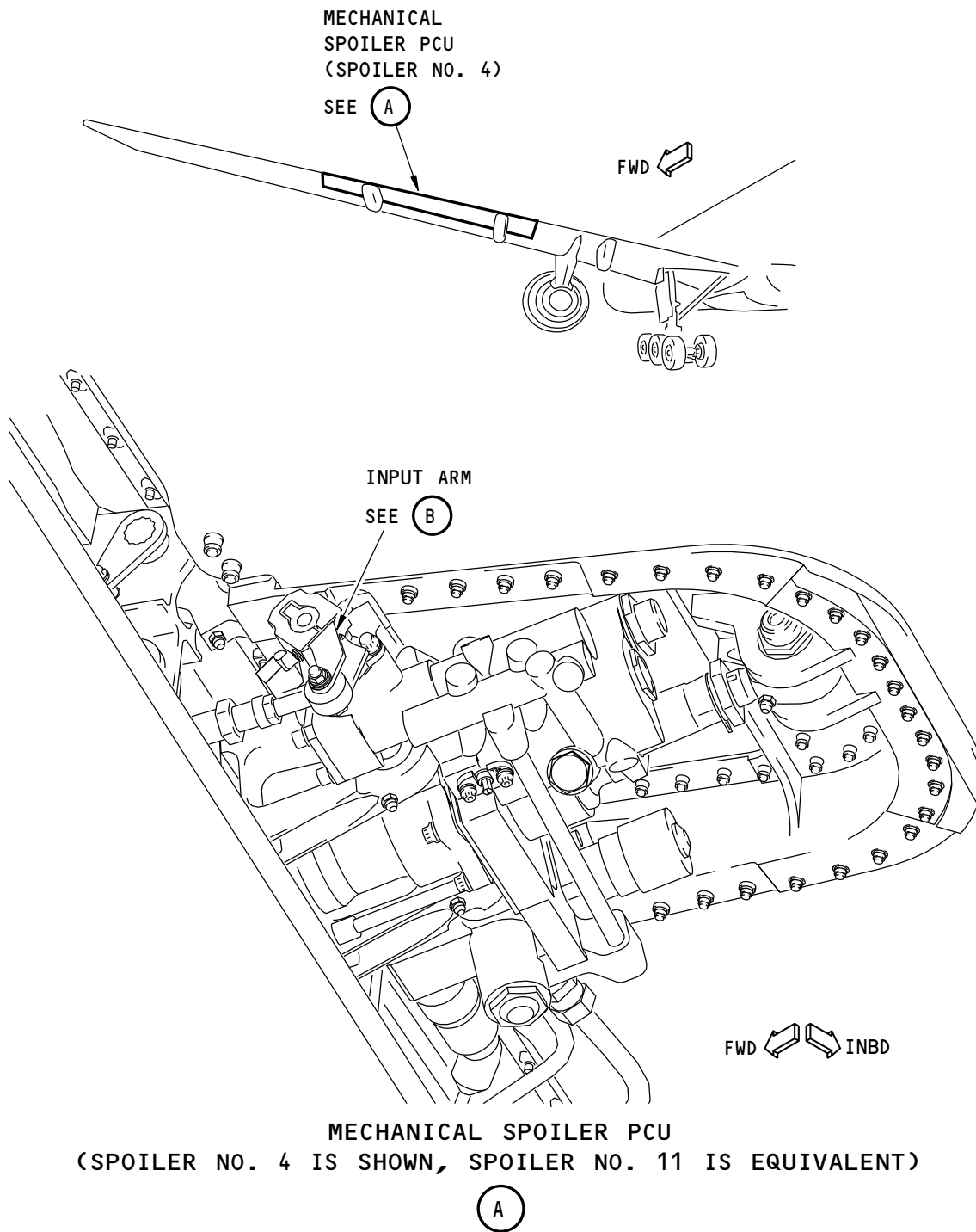
27-61 TASK SUPPORT

D633W103-ARO

Page 301
Jan 05/2013



777-200/300
FAULT ISOLATION MANUAL



E32330 S0006698765_V2

Mechanical Spoiler Input Arm
Figure 302/27-61-00-990-802 (Sheet 1 of 2)

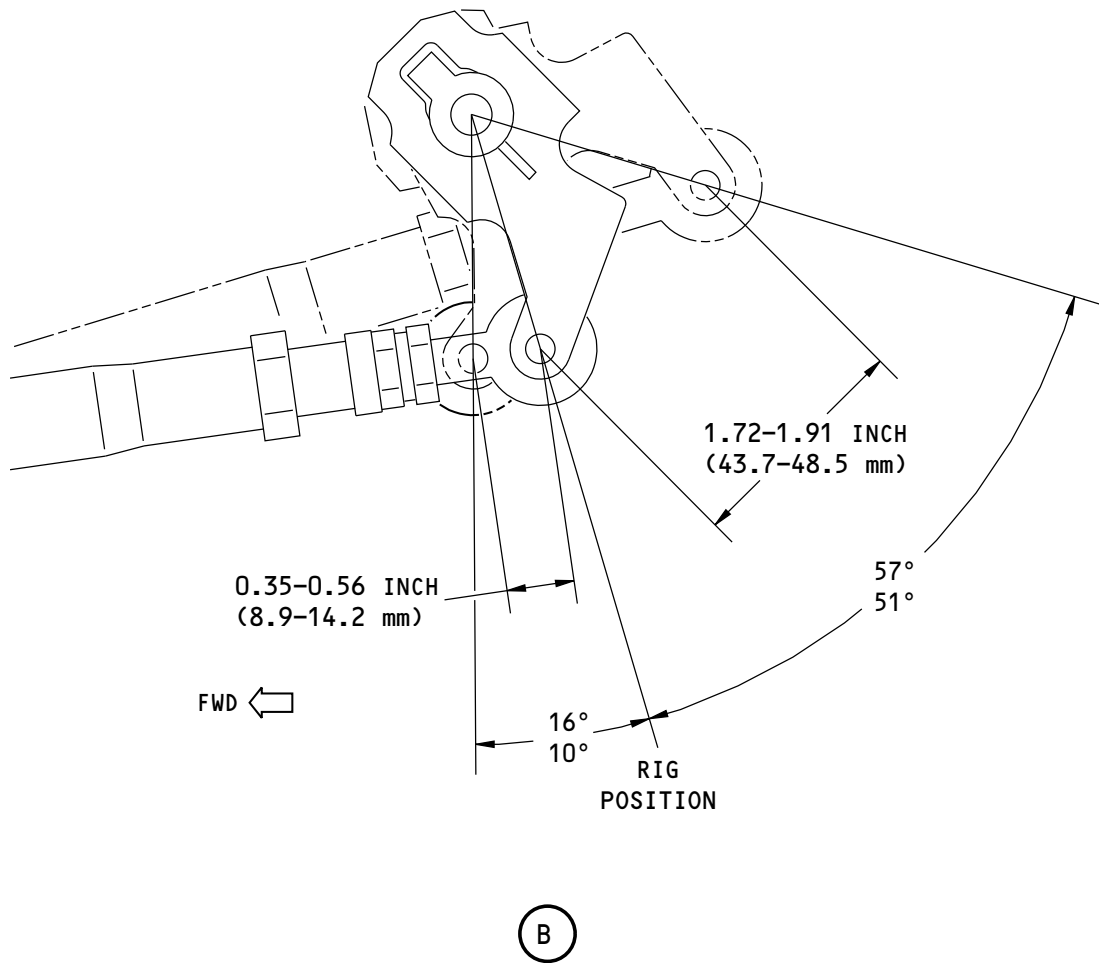
EFFECTIVITY
ARO ALL

27-61 TASK SUPPORT

D633W103-ARO

Page 302
Jan 05/2013

BOEING
777-200/300
FAULT ISOLATION MANUAL



E32331 S0006698766_V2

Mechanical Spoiler Input Arm
Figure 302/27-61-00-990-802 (Sheet 2 of 2)

EFFECTIVITY
 ARO ALL

27-61 TASK SUPPORT

D633W103-ARO

Page 303
 Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

801. Auto Speedbrake Actuator Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10600.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the auto speedbrake actuator, M27019. These are the tasks:
 - Auto Speedbrake Actuator - Removal, AMM TASK 27-62-01-000-801
 - Auto Speedbrake Actuator - Installation, AMM TASK 27-62-01-400-801
 - (a) Do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the left 1 actuator control electronics (ACE-L1) recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-62 TASK 801

D633W103-ARO

Page 201
Jan 05/2015



777-200/300 FAULT ISOLATION MANUAL

- (4) Exchange the ACE for M27221. This is the task:
- Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (5) Replace the right actuator control electronics (ACE-R) recommended by the previous step. These are the tasks:
- Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
- (a) Do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.
- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (c) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If the maintenance message shows on the ground test display, then continue.
- (6) Do a check of the wiring between the speedbrake actuator (M27019), the two relays (K27009 and K27010) and the PSA-L (M24101) (WDM 27-61-19).

- (a) Open this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)

- (b) Open this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (c) Disconnect connector DM27019 from the auto speedbrake actuator.
- (d) Remove the auto speedbrake relay K27010.
- (e) Do a check of this wiring:

DM27019	DK27010
pin 6	pin A2
pin 8	pin B2

- (f) Remove the auto speedbrake relay K27009.
- (g) Do a check of this wiring:

DK27010	DK27009
pin A3	pin A2
pin B1	pin B2

- (h) Remove the PSA-L, M24101, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- (i) Do a check of these wirings:

EFFECTIVITY
ARO ALL

27-62 TASK 801

D633W103-ARO

Page 202
Jan 05/2015



777-200/300 FAULT ISOLATION MANUAL

DK27010

pin A1 pin 11
pin B3 pin 11

DM24101AD

DK27009

pin A3 pin 12
pin B1 pin 12

DM24101AD

DM27019

pin 10 pin 11

DM24101AD

- (j) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the relays and the PSA-L (if they are removed). To install the PSA, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- 3) Re-connect the connector to the speedbrake actuator.
- 4) Close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)

- 5) Close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 6) Do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 7) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 8) If the maintenance message does not show on the ground test display, you corrected the fault.
- (k) If you do not find a problem with the wiring, then continue.
- 1) Re-install the relays and the PSA-L (if they are removed). To install the PSA, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 2) Re-connect the connector to the speedbrake actuator.
 - 3) Close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-62 TASK 801

D633W103-ARO

Page 203
Jan 05/2015



777-200/300 FAULT ISOLATION MANUAL

- 4) Close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (7) Do this check of the command wiring:

- (a) Open these circuit breakers on the PSA-L, M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. to remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
- (c) Remove the auto speedbrake relay K27019.
- (d) Do a wiring check between these pins of connector DM27121AC at the E1-5 shelf and connector DM27019 at the auto speedbrake actuator, M27019 (WDM 27-61-19):

DM27121AC	DM27019
pin A6	pin 4
pin B6	pin 2

- (e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-connect connector DM29019.
- 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- 4) Close these circuit breakers on the PSA-L, M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.

EFFECTIVITY
ARO ALL

27-62 TASK 801

D633W103-ARO

Page 204
Sep 05/2013



777-200/300 FAULT ISOLATION MANUAL

- a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- 6) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- 7) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

802. Auto Speedbrake Relay (Arm) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10601.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the auto speedbrake arm relay, K27010 (WDM 27-61-19).

NOTE: This relay is on the top of the AEO160 disconnect panel, which is above the forward access door, 112AL.

 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27221. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the right actuator control electronics (ACE-R) recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

EFFECTIVITY
ARO ALL

27-62 TASKS 801-802

D633W103-ARO

Page 205
Jan 05/2015



777-200/300 FAULT ISOLATION MANUAL

- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the power wiring:
- (a) Remove the auto speedbrake arm relay, K27010 (WDM 27-61-19).
 - (b) Do a check for 28V DC from pin X1 of connector DK27010 to structure ground.
 - (c) If there is not 28V DC at pin X1 of connector DK27010, then do these steps:
 - 1) Remove the right power supply assembly (PSA-R), M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - 2) Do a wiring check between these pins of connector DK27010 at the auto speedbrake arm relay, K27010, and connector DM24201AD at the E5-1 shelf (WDM 27-61-19):

DK27010	DM24201AD
pin X1	pin 12

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the auto speedbrake arm relay, K27010.
 - c) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - e) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - f) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - g) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then do these steps:
 - a) Re-install the auto speedbrake arm relay, K27010.
 - b) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - d) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - e) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.

EFFECTIVITY
ARO ALL

27-62 TASK 802

D633W103-ARO

Page 206
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If there is 28V DC at pin X1 of connector DK27010, then continue.
- (5) Do this check of the command wiring:
- (a) Open these circuit breakers on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Remove the ACE-R, M27221. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27221AC at the E5-2 shelf and connector DK27010 at the auto speedbrake arm relay, K27010 (WDM 27-61-19):

DM27221AC	DK27010
pin F5	pin X2

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the auto speedbrake arm relay, K27010.
 - 3) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 6) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 7) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 8) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-install the auto speedbrake arm relay, K27010.

EFFECTIVITY
ARO ALL

27-62 TASK 802

D633W103-ARO

Page 207
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (6) Do this check of the ground wiring:
- (a) Remove the PSA-R, M24201. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM24201AD at the E5-2 shelf and connector DM27221AB at the E5-2 shelf (WDM 27-41-13):

DM24201AD	DM27221AB
pin 11	pin A9

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-install the PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Close these circuit breakers on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 6) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 7) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 8) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-R, M27221. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (7) Install a new PSA-R, M24201. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (a) Close these circuit breakers on the PSA-R, M24201, on the E5-1 shelf:

Power Supply Assembly Right, M24201

Row	Col	Number	Name
A	1	CBA1-R	ACE PWR
A	3	CBA3-R	AIL PCU
A	5	CBA5-R	FLPRN PCU
A	7	CBA7-R	ELEV PCU

EFFECTIVITY
ARO ALL

27-62 TASK 802

D633W103-ARO

Page 208
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	CBA9-R	RUD PCU
B	2	CBB2-R	STAB TRIM
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- (c) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (e) If the maintenance message does not show on the ground test display, you corrected the fault.

————— END OF TASK —————

803. Auto Speedbrake Relay (Arm) Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15032.

B. Initial Evaluation

- (1) Close this circuit breaker on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (a) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.
- (2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the auto speedbrake arm relay, K27010 (WDM 27-61-19).

NOTE: This relay is on the top of the AEO160 disconnect panel, which is above the forward access door, 112AL.

- (a) Close this circuit breaker on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

EFFECTIVITY
ARO ALL

27-62 TASKS 802-803

D633W103-ARO

Page 209
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the circuit breaker opens when you try to close it, then continue.
 - (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (d) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (e) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the right power supply assembly (PSA-R), M24201. These are the tasks:
- Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Close this circuit breaker on the right power supply assembly (PSA-R), M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- (b) If the circuit breaker opens when you try to close it, then continue.
 - (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (d) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (e) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (f) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (g) If the maintenance message shows on the ground test display, then continue.
- (3) Repair the wiring between these pins of connector DM24201AD at the PSA-R, M24201 and connector DK27010 at the auto speedbrake arm relay, K27010 (WDM 27-61-19):

DM24201AD	DK27010
pin 12	pin X1

- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- (b) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

804. Auto Speedbrake Relay (Control) Circuit Breaker Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-15033.

EFFECTIVITY
ARO ALL

27-62 TASKS 803-804

D633W103-ARO

Page 210
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Close these circuit breakers on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)

- (a) If the circuit breaker opens when you try to close it, then do the Fault Isolation Procedure below.
- (2) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the auto speedbrake control relay, K27009 (WDM 27-61-19).

NOTE: This relay is on the top of the AEO160 disconnect panel, which is above the forward access door, 112AL.

- (a) Close these circuit breakers on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)

- (b) If the circuit breaker opens when you try to close it, then continue.
 - (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (d) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (e) If the maintenance message shows on the ground test display, then continue.
- (2) Replace the auto speedbrake arm relay, K27010 (WDM 27-61-19).

NOTE: This relay is adjacent to K27009, on the top of the AEO160 disconnect panel.

- (a) Close these circuit breakers on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)

- (b) If the circuit breaker opens when you try to close it, then continue.
 - (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

EFFECTIVITY
ARO ALL

27-62 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 211
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If the maintenance message shows on the ground test display, then continue.
- (3) Replace the left power supply assembly (PSA-L), M24101. These are the tasks:
 - Power Supply Assembly Removal, AMM TASK 24-35-01-000-801
 - Power Supply Assembly Installation, AMM TASK 24-35-01-400-801
- (a) Close these circuit breakers on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)

- (b) If the circuit breaker opens when you try to close it, then continue.
- (c) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the power wiring:
 - (a) Remove the auto speedbrake control relay, K27009 (WDM 27-61-19).
 - (b) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (c) Do a check for continuity from pin 12 of connector DM24101AD, the connector for the PSA-L, to structure ground (WDM 27-61-19):
 - 1) If there is continuity from pin 12 of DM24101AD to structure ground, then do these steps:
 - a) Repair the wiring between these pins of connector DM24101AD (at the PSA-L, M24101) and connector DK27009 (at the auto speedbrake control relay, K27009) (WDM 27-61-19):

DM24101AD	DK27009
pin 12	pin A3
pin 12	pin B1
pin 12	pin X1

- b) Re-install the auto speedbrake control relay, K27009 (WDM 27-61-19).
- c) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

EFFECTIVITY
ARO ALL

27-62 TASK 804



777-200/300 FAULT ISOLATION MANUAL

- <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- e) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 2) If there is not continuity from pin 12 of DM24101AD to structure ground, then continue.
- (5) Do this check of the control wiring:
- (a) Remove the auto speedbrake arm relay, K27010 (WDM 27-61-19).
 - (b) Do a check for continuity from these pins of connector DK27009 (the connector for the auto speedbrake control relay) to structure ground (WDM 27-61-19):
 - 1) Pin A2 to structure ground
 - 2) Pin B2 to structure ground
 - 3) If there is continuity from pin A2 or B2 of DK27009 to structure ground, then do these steps:
 - a) Repair the wiring between these pins of connector DK27009 (at the auto speedbrake control relay, K27009) and connector DK27010 (at the auto speedbrake arm relay, K27010) (WDM 27-61-19):
- | DK27009 | DK27010 |
|------------------|----------------|
| pin A2 | pin A3 |
| pin B2 | pin B1 |
- b) Re-install the auto speedbrake control relay, K27009, and the auto speedbrake arm relay, K27010 (WDM 27-61-19).
 - c) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
 - 4) If there is not continuity from pin A2 or B2 of DK27009 to structure ground, then continue.
- (c) Disconnect the connector for the auto speedbrake actuator, DM27019, at the AEO160 disconnect panel.
- NOTE: This disconnect panel is above the forward access door, 112AL.
- (d) Do a check for continuity from these pins of connector DK27010 (the connector for the auto speedbrake arm relay) to structure ground (WDM 27-61-19):
 - 1) Pin A2 to structure ground
 - 2) Pin B2 to structure ground
 - 3) If there is continuity from pin A2 or B2 of DK27010 to structure ground, then do these steps:

EFFECTIVITY
ARO ALL

27-62 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 213
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- a) Repair the wiring between these pins of connector DK27010 at the auto speedbrake arm relay, K27010 and connector DM27019 for the auto speedbrake actuator, M27019 (WDM 27-61-19):

DK27010	DK27019
pin A2	pin 6
pin B2	pin 8

- b) Re-connect connector DM27019 for the auto speedbrake actuator.
- c) Re-install the auto speedbrake control relay, K27009, and the auto speedbrake arm relay, K27010 (WDM 27-61-19).
- d) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- f) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- g) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If there is not continuity from pin A2 or B2 of DK27010 to structure ground, then continue.
- (6) Replace the auto speedbrake actuator, M27019. These are the tasks:
- Auto Speedbrake Actuator - Removal, AMM TASK 27-62-01-000-801
 - Auto Speedbrake Actuator - Installation, AMM TASK 27-62-01-400-801
- (a) Re-install the auto speedbrake control relay, K27009, and the auto speedbrake arm relay, K27010 (WDM 27-61-19).
- 1) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- (c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- (d) If the maintenance message does not show on the ground test display, you corrected the fault.

————— **END OF TASK** —————

805. Auto Speedbrake Relay (Control) Command Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-10602.

EFFECTIVITY
ARO ALL

27-62 TASKS 804-805

D633W103-ARO

Page 214
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (d) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the auto speedbrake control relay, K27009 (WDM 27-61-19).

NOTE: This relay is on the top of the AEO160 disconnect panel, which is above the forward access door, 112AL.

 - (a) Do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If the maintenance message shows on the ground test display, then continue.
- (2) Exchange the ACE for M27121. This is the task:
 - Swapping the Actuator Control Electronics (ACEs), 27-02 TASK A27
- (3) Replace the left 1 actuator control electronics (ACE-L1) recommended by the previous step. These are the tasks:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803
 - (a) Do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If the maintenance message shows on the ground test display, then continue.
- (4) Do this check of the power wiring:
 - (a) Remove the auto speedbrake control relay, K27009 (WDM 27-61-19).
 - (b) Do a check for 28V DC from pin X1 of connector DK27009 to structure ground.
 - (c) If there is not 28V DC at pin X1 of connector DK27009, then do these steps:

EFFECTIVITY
ARO ALL

27-62 TASK 805

D633W103-ARO

Page 215
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Remove the left power supply assembly (PSA-L), M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- 2) Do a wiring check between these pins of connector DK27009 at the auto speedbrake control relay, K27009, and connector DM24101AD at the E1-5 shelf (WDM 27-61-19):

DK27009	DM24101AD
pin X1	pin 12

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the auto speedbrake control relay, K27009.
 - c) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - d) Do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.

<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - e) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - f) If the maintenance message does not show on the ground test display, you corrected the fault.
- 4) If you do not find a problem with the wiring, then do these steps:
 - a) Re-install the auto speedbrake control relay, K27009.
 - b) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - c) Do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.

<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - d) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - e) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If there is 28V DC at pin X1 of connector DK27009, then continue.
- (5) Do this check of the command wiring:
 - (a) Open these circuit breakers on the PSA-L, M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

Row	Col	Number	Name
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM

EFFECTIVITY
ARO ALL

27-62 TASK 805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 216
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- (b) Remove the ACE-L1, M27121. To remove it, do this task: Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801.
- (c) Do a wiring check between these pins of connector DM27121AC at the E1-5 shelf and connector DK27009 at the auto speedbrake control relay, K27009 (WDM 27-61-19):

DM27121AC	DK27009
pin F5	pin X2

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the auto speedbrake control relay, K27009.
 - 3) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 4) Close these circuit breakers on the PSA-L, M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- 6) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (f) Re-install the auto speedbrake control relay, K27009.
- (6) Do this check of the ground wiring:
 - (a) Remove the PSA-L, M24101. To remove it, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
 - (b) Do a wiring check between these pins of connector DM24101AD at the E1-6 shelf and connector DM27121AB at the E1-5 shelf (WDM 27-61-19):

EFFECTIVITY
ARO ALL

27-62 TASK 805

D633W103-ARO

Page 217
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM24101AD

pin 11

DM27121AB

pin A9

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
 - 3) Re-install the PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
 - 4) Close these circuit breakers on the PSA-L, M24101, on the E1-6 shelf:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	CBA1-L	ACE PWR
A	3	CBA3-L	AIL PCU
A	5	CBA5-L	FLPRN PCU
A	7	CBA7-L	ELEV PCU
A	9	CBA9-L	RUD PCU
B	2	CBB2-L	STAB TRIM
B	4	CBB4-L	AUTO SPDBRK (L,R)
B	8	CBB8-L	RUD TRIM ACTR (L)

- 5) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 6) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 7) If the maintenance message does not show on the ground test display, you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (e) Re-install the ACE-L1, M27121. To install it, do this task: Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803.
- (7) Install a new PSA-L, M24101. To install it, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- (a) Do this ground test on the MAT to erase the maintenance message: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-62 TASK 805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 218
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

806. Auto Speedbrake Thrust Reverser Switch Status Does Not Agree with Reverser Status from Electronic Engine Controls - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-17001.

B. Initial Evaluation

- (1) Set the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, to the TEST position.
- (2) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.
 - 1) Set the EEC MAINT switches back to the NORM position.

C. Fault Isolation Procedure

- (1) Replace the auto speedbrake RTO (rejected takeoff) switch (also called the auto speedbrake armed switch), S27056. To adjust the switch, do this task: Speedbrake Control System - Adjustment, AMM TASK 27-62-00-820-801
 - (a) Make sure the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, are set to the TEST position.
 - (b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - 2) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault. Set the EEC MAINT switches back to the NORM position.
 - 4) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do this check of the wiring.
 - (a) Do a wiring check between this pin of terminal block TB1009 and structure ground (WDM 27-61-20).

TB1009	Ground
pin PB5	GB1001-DC

- (b) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-62 TASK 806

D633W103-ARO

Page 219
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Make sure the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, are set to the TEST position.
- 3) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault. Set the EEC MAINT switches back to the NORM position.
- (c) If you do not find a problem with the wiring, then continue:
- (d) Remove the IOM(M003) and IOM(M004) cards from the AIMS-L cabinet, M31101. To remove them, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
- (e) Do a wiring check between these pins of terminal block TB1009 and the connectors for the IOM modules (at the AIMS-L cabinet) (WDM 27-61-20).

TB1009	J240-A
pin PA5	pin C17
pin PA6	pin D1

TB1009	J250-A
pin PA5	pin C17
pin PA6	pin D1

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-Install the IOM cards. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Make sure the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, are set to the TEST position.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault. Set the EEC MAINT switches back to the NORM position.
- (g) If you do not find a problem with the wiring, then continue:

EFFECTIVITY
ARO ALL

27-62 TASK 806

D633W103-ARO

Page 220
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (h) Remove the IOM(M003) and IOM(M004) cards from the AIMS-R cabinet, M31201. To remove them, do this task: Input/Output Module (IOM) Removal, AMM TASK 31-41-11-000-801.
- (i) Do a wiring check between these pins of terminal block TB1009 and the connectors for the IOM modules (at the AIMS-R cabinet) (WDM 27-61-20).

TB1009	J240-A
pin PA5	pin C17
pin PA6	pin D1

TB1009	J250-A
pin PA5	pin C17
pin PA6	pin D1

- (j) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-Install the IOM cards. To install them, do this task: Input/Output Module (IOM) Installation, AMM TASK 31-41-11-400-801.
 - 3) Make sure the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, are set to the TEST position.
 - 4) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault. Set the EEC MAINT switches back to the NORM position.

————— **END OF TASK** —————

807. EICAS Message SPEEDBRAKE ARMED - Fault Isolation

A. Initial Evaluation

NOTE: This message shows when the speedbrake handle is set to the ARMED position.

- (1) Push the speedbrake lever forward to make sure that it is in the DOWN position.

————— **END OF TASK** —————

808. Speedbrake Lever does Not Follow Command - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-16061.

B. Initial Evaluation

NOTE: This maintenance message only occurs when you do the Speedbrake System ground test on the MAT.

EFFECTIVITY
ARO ALL

27-62 TASKS 806-808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 221
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

(1) Look at page one of the maintenance pages for flight controls (on the MFD).

- (a) Move the speedbrake lever forward and aft. Look to see if the SPD BRK HANDLE POSITION indications, on the maintenance page, change as you move the lever.

NOTE: The indications should change from approximately -5 to -10 (when the lever is in the DOWN position), to approximately +32 to +38 (when the lever is in the UP position).

- (b) If the position indications do not change when you move the lever, then do these steps:

NOTE: If this happens, then the speedbrake lever is not mechanically connected to the transducers.

- 1) Examine the rod that connects the speedbrake lever to the auto speedbrake clutch. For an illustration of the rod (AMM TASK 27-62-02-400-802).
- 2) If the rod is disconnected or broken, then do these steps:
 - a) Replace or re-connect the rod.
 - b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the rod is not disconnected, then continue.
- 4) Replace the speedbrake lever transducers, M27029. These are the tasks:
 - Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-000-801
 - Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - d) If the maintenance message shows on the ground test display, then continue.
- 5) Replace the auto speedbrake clutch. These are the tasks:
 - Auto Speedbrake Clutch Removal, AMM TASK 27-62-02-000-802
 - Auto Speedbrake Clutch Installation, AMM TASK 27-62-02-400-802
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.

EFFECTIVITY
ARO ALL

27-62 TASK 808

D633W103-ARO

Page 222
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- b) If the maintenance message does not show on the ground test display, you corrected the fault.
- (c) If the position indications for the speedbrake lever change when you move the lever, then continue.
- (2) Apply a small quantity of grease, D00014 to the detent plate for the speedbrake lever.
NOTE: Too much friction between the speedbrake lever and its detent plate can cause the speedbrake clutch to slip.
- (a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - 1) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - (c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - (d) If the maintenance message shows on the ground test display, then continue.
- (3) Do this check of the auto speedbrake actuator:
 - (a) Do these steps to prepare for the check:
 - 1) Move the FUEL CONTROL switches on the control stand to the CUTOFF position and attach DO-NOT-OPERATE tags.
 - 2) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	23	C78605	L ENG T/R CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
N	12	C78604	R ENG T/R CTRL

- 3) Set the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, to the TEST position.
- 4) Move the reverse thrust levers down to the stowed position.
- 5) Move the forward thrust levers aft to the idle position.
- 6) Set the speedbrake lever to the DOWN position.
- (b) Do this check:
 - 1) Move the reverse thrust levers up the deployed position. Listen to hear if the speedbrake actuator (which is in the control stand) operates.
 - a) Make sure the speedbrake lever moves to the UP position.
 - 2) Move the reverse thrust levers down to the stowed position.
 - 3) Move the forward thrust levers fully forward. Listen to hear if the speedbrake actuator operates.
 - a) Make sure the speedbrake lever moves to the DOWN position.
- (c) Do these steps to put the airplane back to its usual condition:
 - 1) Move the forward thrust levers aft to the idle position.

EFFECTIVITY
ARO ALL

27-62 TASK 808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 223
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) Set the EEC MAINT L ENG POWER switch and the EEC MAINT R ENG POWER switch on the overhead maintenance panel, P61, to the NORM position.
- 3) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
P	23	C78605	L ENG T/R CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
N	12	C78604	R ENG T/R CTRL

- 4) Remove the DO-NOT-OPERATE tags from the FUEL CONTROL switches on the P10 panel.
- (d) If (in the actuator check above) the speedbrake lever operated as specified, then do these steps:

NOTE: These steps will find if the limit switch in the speedbrake actuator is OK.

- 1) Do the actuator check again (the manual test given above, not the test on the MAT). But, this time, look at page 3 of the maintenance pages for the flight controls (on the MFD).
 - a) Make sure the SPDBRK ACT RETRACTED indication shows NO when the speedbrake actuator moves the lever to the UP position.

NOTE: Only the ACE L1 indication will show these indications. The other three ACEs do not monitor the speedbrake actuator position.
 - b) Make sure the SPDBRK ACT RETRACTED indication shows YES when the speedbrake actuator moves the lever to the DOWN position.
 - c) If the indications do not operate as specified above, then continue.
 - d) Replace the auto speedbrake actuator, M27019. These are the tasks:
 - Auto Speedbrake Actuator - Removal, AMM TASK 27-62-01-000-801
 - Auto Speedbrake Actuator - Installation, AMM TASK 27-62-01-400-801
 - e) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - f) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - g) If the maintenance message does not show on the ground test display, you corrected the fault.
- (e) If (in the actuator check above) you do not hear the speedbrake actuator operate and the speedbrake lever does not move, then do these steps:

NOTE: If this happens, then there is a problem with the speedbrake actuator or its wiring (including its relays).

EFFECTIVITY
ARO ALL

27-62 TASK 808

D633W103-ARO

Page 224
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 1) Open this circuit breaker on the left power supply assembly (PSA-L), M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)

- 2) Replace the auto speedbrake control relay, K27009 (WDM 27-61-19).

NOTE: This relay is on the top of the AEO160 disconnect panel, which is above the forward access door, 112AL.

- a) Close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)

- b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.

- c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- d) If the maintenance message does not show on the ground test display, you corrected the fault.
- e) If the maintenance message shows on the ground test display, then continue.

- 3) Open this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- 4) Replace the auto speedbrake arm relay, K27010 (WDM 27-61-19).

NOTE: This relay is adjacent to K27009, on the top of the AEO160 disconnect panel.

- a) Close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.

<1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.

- c) If the maintenance message does not show on the ground test display, you corrected the fault.
- d) If the maintenance message shows on the ground test display, then continue.

- 5) Replace the auto speedbrake actuator, M27019. These are the tasks:

- Auto Speedbrake Actuator - Removal, AMM TASK 27-62-01-000-801

EFFECTIVITY
ARO ALL

27-62 TASK 808

D633W103-ARO

Page 225
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Auto Speedbrake Actuator - Installation, AMM TASK 27-62-01-400-801
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - d) If the maintenance message shows on the ground test display, then continue.
- 6) Do a check of the wiring between the speedbrake actuator (M27019), the two relays (K27009 and K27010) and the PSA-L (M24101) (WDM 27-61-19).
 - a) Close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)

- b) Open this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- c) Disconnect connector DM27019 from the auto speedbrake actuator.
 - d) Remove the auto speedbrake relay K27010.
 - e) Do a check of this wiring:
- | | |
|-----------------|----------------|
| DM27019 | DK27010 |
| pin 6 | pin A2 |
| pin 8 | pin B2 |
- f) If you find a problem with the wiring, then go to the "Repair the wiring" step below.
 - g) If you do not find a problem with the wiring, then continue.
 - h) Remove the auto speedbrake relay K27009.
 - i) Do a check of this wiring:

DK27010	DK27009
pin A3	pin A2
pin B1	pin B2

- j) If you find a problem with the wiring, then go to the "Repair the wiring" step below.
- k) If you do not find a problem with the wiring, then continue.
- l) Remove the PSA-L, M24101, do this task: Power Supply Assembly Removal, AMM TASK 24-35-01-000-801.
- m) Do a check of this wiring:

EFFECTIVITY
ARO ALL

27-62 TASK 808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 226
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DK27010	DM24101AD
pin A1	pin 11
pin B3	pin 11

DK27009	DM24101AD
pin A3	pin 12
pin B1	pin 12

DM27019	DM24101AD
pin 10	pin 11

- n) If you find a problem with the wiring, then continue.
- o) Repair the wiring.
- p) Re-install the relays and the PSA-L (if they are removed). To install the PSA, do this task: Power Supply Assembly Installation, AMM TASK 24-35-01-400-801.
- q) Re-connect the connector to the speedbrake actuator.
- r) Close this circuit breaker on the PSA-L, M24101:

Power Supply Assembly Left, M24101

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-L	AUTO SPDBRK (L,R)

- s) Close this circuit breaker on the PSA-R, M24201:

Power Supply Assembly Right, M24201

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	CBB4-R	AUTO-SPDBRK (L,R)

- t) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - u) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - v) If the maintenance message does not show on the ground test display, you corrected the fault.
- (f) If (in the actuator check above) the speedbrake actuator operates but the speedbrake lever does not move, then do these steps:
- 1) Lightly pull the lever aft from the DOWN position. Do not lift the lever.
NOTE: These steps make sure the RTO speedbrake mechanism is lifting the lever out of the DOWN detent.
 - 2) If the lever catches when you move it from the DOWN to the ARMED position then do these steps:
 - a) For the RTO speedbrake mechanism, do this task: Speedbrake Control System - Adjustment, AMM TASK 27-62-00-820-801.

EFFECTIVITY
ARO ALL

27-62 TASK 808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 227
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- d) If the maintenance message does not show on the ground test display, you corrected the fault.
- e) If the maintenance message shows on the ground test display, then continue.
- 3) If the lever does not catch when you move it from the DOWN to the ARMED position, then continue.
- (g) If (in the actuator check above) the speedbrake actuator operates but the speedbrake lever does not move fully to the specified positions, then do these steps:

NOTE: If this happens, the speedbrake actuator is mechanically disconnected, or the speedbrake clutch is slipping. The speedbrake clutch can slip because it is bad or because there is too much friction in the speedbrake lever mechanism.

- 1) Examine the speedbrake actuator to see if it is disconnected.
- 2) If the speedbrake actuator is disconnected, then do these steps:
 - a) Replace or re-connect the speedbrake actuator. These are the tasks:
 - Auto Speedbrake Actuator - Removal, AMM TASK 27-62-01-000-801
 - Auto Speedbrake Actuator - Installation, AMM TASK 27-62-01-400-801
 - b) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - c) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - d) If the maintenance message does not show on the ground test display, you corrected the fault.
- 3) If the speedbrake actuator is not disconnected, then continue.
- 4) Replace the auto speedbrake clutch. These are the tasks:
 - Auto Speedbrake Clutch Removal, AMM TASK 27-62-02-000-802
 - Auto Speedbrake Clutch Installation, AMM TASK 27-62-02-400-802
- a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
- b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
- c) If the maintenance message does not show on the ground test display, you corrected the fault.
- d) If the maintenance message shows on the ground test display, then continue.
- 5) Replace the speedbrake lever transducers, M27029 . These are the tasks:

EFFECTIVITY
ARO ALL

27-62 TASK 808

D633W103-ARO

Page 228
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- Speedbrake Lever Transducer Removal, AMM TASK 27-61-02-000-801
 - Speedbrake Lever Transducer Installation, AMM TASK 27-61-02-400-801
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the maintenance message does not show on the ground test display, you corrected the fault.
 - d) If the maintenance message shows on the ground test display, then continue.
- 6) Replace the speedbrake lever. These are the tasks:
- Speedbrake Lever Removal, AMM TASK 27-61-01-000-801
 - Speedbrake Lever Installation, AMM TASK 27-61-01-400-801
 - a) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
 - <1> Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - b) Push the speedbrake lever forward to make sure that it is in the DOWN position.
 - c) If the maintenance message does not show on the ground test display, you corrected the fault.

END OF TASK

809. EICAS Message AUTO SPEEDBRAKE (with No Correlated Maintenance Message) - Fault Isolation

A. Description

- (1) AUTO SPEEDBRAKE advisory and status messages occur on the ground with no correlated maintenance messages.

B. Possible Causes

- (1) Uncorrelated AUTO SPEEDBRAKE advisory or status messages can be set if the center hydraulic system pressure drops below 2600 psi for more than 40 seconds.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27-Primary Flight Controls, System Test, Speedbrake System.
- (a) Make sure that the left and right hydraulic system pressures show 200 psi (1379 kPa) or less before you do this test.
 - (b) If the AUTO SPEEDBRAKE advisory or status message shows with no correlated maintenance messages, then pressurize the center hydraulic system to greater than 2700 psi.
 - 1) If the AUTO SPEEDBRAKE advisory or status message does not show on the ground test display, then there was an intermittent fault.
 - 2) If the AUTO SPEEDBRAKE advisory or status message shows with correlated maintenance messages, then do the appropriate fault isolation task.

EFFECTIVITY
ARO ALL

27-62 TASKS 808-809

D633W103-ARO

Page 229
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (c) If the AUTO SPEEDBRAKE advisory or status message shows with correlated maintenance messages, then do the appropriate fault isolation task.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-62 TASK 809

D633W103-ARO

Page 230
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

801. Slat Asymmetry Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20941.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (2) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the two slat position sensors on the left wing, M27103 and M27203.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (4) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (5) Replace the two slat position sensors on the right wing, M27104 and M27204.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

EFFECTIVITY
ARO ALL

27-81 TASK 801

D633W103-ARO

Page 201
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

- (6) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.
- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (7) Do a check of the wiring between FSEU 1 and FSEU 2 and the slat position sensors on the left wing:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27103 from slat position sensor, M27103.
- (e) Disconnect the connector DM27203 from slat position sensor, M27203.
- (f) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27103 at the slat position sensor, M27103 (WDM 27-88-11):

DM27001AC

pin K4	.....	pin 1
pin J4	.....	pin 2
pin G6	.....	pin 3
pin G7	.....	pin 4
pin F6	.....	pin 5
pin F7	.....	pin 6

DM27103

- (g) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27203 at the slat position sensor, M27203 (WDM 27-88-12):

DM27002AC

pin K4	.....	pin 1
pin J4	.....	pin 2
pin G6	.....	pin 3
pin G7	.....	pin 4
pin F6	.....	pin 5
pin F7	.....	pin 6

DM27203

- (h) If you find a problem with the wiring, repair the wiring.

EFFECTIVITY
ARO ALL

27-81 TASK 801

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 202
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Re-connect connector DS27103.
- (l) Re-connect connector DS27203.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (8) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (9) Do a check of the wiring between FSEU 1 and FSEU 2 and the slat position sensors on the right wing:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (d) Disconnect the connector DM27104 from slat position sensor, M27104.
 - (e) Disconnect the connector DM27204 from slat position sensor, M27204.
 - (f) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27104 at the slat position sensor, M27104 (WDM 27-88-11):

EFFECTIVITY
ARO ALL

27-81 TASK 801

D633W103-ARO

Page 203
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27001AA

pin A4	.....	pin 1
pin B4	.....	pin 2
pin D6	.....	pin 3
pin D7	.....	pin 4
pin E6	.....	pin 5
pin E7	.....	pin 6

DM27104

- (g) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27203 at the slat position sensor, M27204 (WDM 27-88-12):

DM27002AA

pin A4	.....	pin 1
pin B4	.....	pin 2
pin D6	.....	pin 3
pin D7	.....	pin 4
pin E6	.....	pin 5
pin E7	.....	pin 6

DM27204

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Re-connect connector DS27104.
- (l) Re-connect connector DS27204.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (10) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (11) Look for a broken or disconnected torque tube:
- (a) Find which wing has the broken or disconnected torque tube:
- 1) Look at the 27-FLAP/SLAT maintenance page on the EICAS.

EFFECTIVITY
ARO ALL

27-81 TASK 801

D633W103-ARO

Page 204
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

- 2) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- 3) Use the wrench flats the torque tube outboard of the PDU to turn the slat drive system.
 - 4) If the SLAT POS L 1 and 2 indications on the maintenance page do not change when you turn the drive system, the broken or disconnected torque tube is in the left wing.
 - 5) If the SLAT POS R 1 and 2 indications on the maintenance page do not change when you turn the drive system, the broken or disconnected torque tube is in the right wing.
- (b) If the broken or disconnected torque tube is in the right wing, do these steps until you find the torque tube:
- 1) Look at the torque tubes and gearboxes that go through the fuselage.
 - 2) Disconnect the inboard torque tube from the slat PDU.
 - 3) Use a LE slat drive torque tube coupling adapter, SPL-1694 to manually turn the right wing drive system a maximum of four torque tube turns.
NOTE: This will move the slats approximately 1/2 inch.
 - 4) Look at the slats on the right wing for a pair of slats that do not fair or a slat that is skewed.
NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.
 - 5) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
 - 6) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
 - 7) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
 - 8) Remove these access panels for the offset gearboxes on the lower surface of the right wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- 9) Connect the inboard torque tube to the slat PDU.

EFFECTIVITY
ARO ALL

27-81 TASK 801

D633W103-ARO

Page 205
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If the broken or disconnected torque tube is in the left wing, do these steps until you find the torque tube:
- 1) Disconnect the outboard torque tube from the slat PDU.
 - 2) Use the wrench flats on the torque tube to manually turn the left wing drive system a maximum of four torque tube turns.
NOTE: This will move the slats approximately 1/2 inch.
 - 3) Look at the slats on the left wing for a pair of slats that do not fair or a slat that is skewed.
NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.
 - 4) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
 - 5) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
 - 6) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
 - 7) Remove these access panels for the offset gearboxes on the lower surface of the left wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- 8) Connect the outboard torque tube to the slat PDU.
- (12) Replace the applicable torque tube or torque tube support:
- (a) If it is necessary, replace a torque tube in the cargo compartment.
These are the tasks:
Cargo Compartment Slat Torque Tube Removal, AMM TASK 27-81-38-000-803,
Cargo Compartment Slat Torque Tube Installation, AMM TASK 27-81-38-400-803.
 - (b) If it is necessary, replace a torque tube on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.
 - (c) If it is necessary, replace a torque tube on the outboard side of the wing.
These are the tasks:
Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.

EFFECTIVITY
ARO ALL

27-81 TASK 801

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 206
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If it is necessary, replace a leading edge pressure seal.
These are the tasks:
Leading Edge Pressure Seal Removal, AMM TASK 27-81-39-000-804,
Leading Edge Pressure Seal Installation, AMM TASK 27-81-39-400-804.
- (e) If it is necessary, replace a torque tube support on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.
- (f) If it is necessary, replace a torque tube support on the outboard side of the wing.
These are the tasks:
Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.
- (g) If it is necessary, replace a torque tube support in the cargo compartment.
These are the tasks:
Cargo Compartment Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-803,
Cargo Compartment Torque Tube Support Installation, AMM TASK 27-81-39-400-803.
- (13) Install the applicable access panels:
- (a) Close this panel below the PDU:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 511AB | Leading Edge PDU Panel |
- (b) Close these panels on the right wing:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 611EB | Inboard Fixed Leading Edge Panel |
| 611LB | Inboard Fixed Leading Edge Panel |
| 621AAB | Outboard Fixed Leading Edge Panel |
| 621ACB | Outboard Fixed Leading Edge Panel |
| 621BB | Outboard Fixed Leading Edge Panel |
| 621EB | Outboard Fixed Leading Edge Panel |
| 621GB | Outboard Fixed Leading Edge Panel |
| 621JB | Outboard Fixed Leading Edge Panel |
| 621MB | Outboard Fixed Leading Edge Panel |
| 621PB | Outboard Fixed Leading Edge Panel |
- (c) Close these panels on the left wing:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 511EB | Inboard Fixed Leading Edge Panel |
| 511LB | Inboard Fixed Leading Edge Panel |
| 521AAB | Outboard Fixed Leading Edge Panel |
| 521ACB | Outboard Fixed Leading Edge Panel |
| 521BB | Outboard Fixed Leading Edge Panel |
| 521EB | Outboard Fixed Leading Edge Panel |
| 521GB | Outboard Fixed Leading Edge Panel |
| 521JB | Outboard Fixed Leading Edge Panel |

EFFECTIVITY
ARO ALL

27-81 TASK 801

D633W103-ARO

Page 207
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- (14) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only.
- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

802. Left Wing Slat Asymmetry Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20851.

B. Initial Evaluation



DO NOT DO A TEST OF THE SLAT SYSTEM WITH HYDRAULIC OR ELECTRIC POWER BEFORE YOU DO A CHECK FOR A BREAK IN THE DRIVE SYSTEM. IF YOU OPERATE THE SLATS WITH POWER, YOU CAN CAUSE DAMAGE TO THE SYSTEM.

- (1) Do not try to operate the slats before you do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Look for a broken or disconnected torque tube in the left wing:
- (a) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (b) Use the wrench flats on the torque tube outboard of the PDU to manually turn the slat drive system a maximum of four torque tube turns.

NOTE: This will move the slats approximately 1/2 inch.

- 1) Use the FLAP/SLAT maintenance page to find which direction to move slats.

NOTE: If the SLAT POS L indications are more than the SLAT POS R indications, move the slats in the retract direction. If the SLAT POS L indications are less than the SLAT POS R indications, move the slats in the extend direction.

- (c) Carefully watch the slats on the left wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.

- (d) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.

EFFECTIVITY
ARO ALL

27-81 TASKS 801-802

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 208
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (e) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
- (f) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
- (g) Remove these access panels for the offset gearboxes on the lower surface of the left wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- (2) If you find a broken or disconnected torque tube, replace the applicable torque tube or torque tube support:
 - (a) If it is necessary, replace a torque tube on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.
 - (b) If it is necessary, replace a torque tube on the outboard side of the wing.
These are the tasks:
Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.
 - (c) If it is necessary, replace a torque tube support on the inboard side of the wing,
These are the tasks:
Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.
 - (d) If it is necessary, replace a torque tube support on the outboard side of the wing,
These are the tasks:
Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.

- (3) Install these access panel:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-81 TASK 802

D633W103-ARO

Page 209
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- (4) Close this access panel below the PDU:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

- (6) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (7) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.

- (8) Replace the two slat position sensors on the left wing, M27103 and M27203.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (9) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

803. Right Wing Slat Asymmetry Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20901.

EFFECTIVITY
ARO ALL

27-81 TASKS 802-803

D633W103-ARO

Page 210
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation



CAUTION

DO NOT DO A TEST OF THE SLAT SYSTEM WITH HYDRAULIC OR ELECTRIC POWER BEFORE YOU DO A CHECK FOR A BREAK IN THE DRIVE SYSTEM. IF YOU OPERATE THE SLATS WITH POWER, YOU CAN CAUSE DAMAGE TO THE SYSTEM.

- (1) Do not try to operate the slats before you do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Look for a broken or disconnected torque tube in the right wing:

- (a) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (b) Look at the torque tubes and gearboxes that go through the fuselage.
(c) Use the wrench flats on the torque tube outboard of the PDU to manually turn the slat drive system a maximum of four torque tube turns.

NOTE: This will move the slats approximately 1/2 inch.

- 1) Use the FLAP/SLAT maintenance page to find which direction to move slats.

NOTE: If the SLAT POS R indications are more than the SLAT POS L indications, move the slats in the retract direction. If the SLAT POS R indications are less than the SLAT POS L indications, move the slats in the extend direction.

- (d) Carefully watch the slats on the right wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.

- (e) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
(f) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
(g) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
(h) Remove these access panels for the offset gearboxes on the lower surface of the right wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-81 TASK 803

D633W103-ARO

Page 211
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- (2) If you find a broken or disconnected torque tube, replace the applicable torque tube or torque tube support:
- (a) If it is necessary, replace a torque tube in the cargo compartment.
These are the tasks:
Cargo Compartment Slat Torque Tube Removal, AMM TASK 27-81-38-000-803,
Cargo Compartment Slat Torque Tube Installation, AMM TASK 27-81-38-400-803.
 - (b) If it is necessary, replace a torque tube on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.
 - (c) If it is necessary, replace a torque tube on the outboard side of the wing.
These are the tasks:
Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.
 - (d) If it is necessary, replace a leading edge pressure seal.
These are the tasks:
Leading Edge Pressure Seal Removal, AMM TASK 27-81-39-000-804,
Leading Edge Pressure Seal Installation, AMM TASK 27-81-39-400-804.
 - (e) If it is necessary, replace a torque tube support on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.
 - (f) If it is necessary, replace a torque tube support on the outboard side of the wing.
These are the tasks:
Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.
 - (g) If it is necessary, replace a torque tube support in the cargo compartment.
These are the tasks:
Cargo Compartment Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-803,
Cargo Compartment Torque Tube Support Installation, AMM TASK 27-81-39-400-803.

- (3) Install these access panels:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-81 TASK 803

D633W103-ARO

Page 212
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- (4) Close this access panel below the PDU:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

- (6) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (7) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.

- (8) Replace the two slat position sensors on the right wing, M27104 and M27204.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (9) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-81 TASK 803

D633W103-ARO

Page 213
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

804. Slat Primary Low Speed Solenoid Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20961.

B. Description

- (1) The Slats Primary Low Speed Solenoid circuit is open.

C. Possible Causes

- (1) Slats Primary Low Speed Solenoid, V3
- (2) Slat Primary Control Valve, V27003
- (3) Wiring
- (4) Flap/Slat Electronics Unit (FSEU) 1, M27001

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-81-15
- (2) SSM 27-81-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

EFFECTIVITY
ARO ALL

27-81 TASK 804

D633W103-ARO

Page 214
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



WARNING

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Low Speed Solenoid as follows (WDM 27-81-15):
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the Slat Primary Control Valve, V27003 in the Left Wheel Well.
- (c) Do a Resistance check between pins 8 and 18 of connector DV27003B on the Slat Primary Control Valve, V27003 in the Left Wheel Well.
- (d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the Low Speed Solenoid on the Slat Primary Control Valve, V27003. These are the tasks:
- Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802
- 2) Do a Resistance check between pins 8 and 18 of connector DV27003B on the Slat Primary Control Valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the Slat Primary Control Valve, V27003.

EFFECTIVITY
ARO ALL

27-81 TASK 804

D633W103-ARO

Page 215
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then replace the Slat Primary Control Valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801
 - Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801
- <1> Do the Repair Confirmation at the end of this task.

- b) If the Resistance is in the specified limits, then continue.

- (e) If the Resistance is in the specified limits, then continue.

- (4) Connect electrical connector DV27003B to the Slat Primary Control Valve, V27003, in the Left Wheel Well.
- (5) Do a check for 28V DC at FSEU 1 as follows:
- (a) Remove FSEU 1, M27001, from the E1-6 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (b) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (c) Do a check for 28V DC between pin F3 (+) on connector DM27001AC and structure ground (WDM 27-81-15).
- 1) If you do not find 28V DC at pin F3 on connector DM27001AC, then do these steps:
- a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- b) At the P310 Power Management Panel, disconnect electrical connector D31036P.
- c) In the Left Wheel Well, disconnect electrical connector DV27003B from the Slat Primary Control Valve, V27003.
- d) Do a wiring check from the FSEU-1 connector DM27001AC to the Power Management Panel P310 connector D31036P as follows (WDM 27-51-15):

E1-6 Shelf	L Wheel Well
DM27001AC	DV27003B
pin F3	pin 8

L Wheel Well	P310 Panel
DV27003B	D31036P
pin 18	pin 14

- <1> If you find a problem with the wiring, then do these steps:

EFFECTIVITY
ARO ALL

27-81 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 216
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- <a> Repair the wiring.
 - Re-connect electrical connector DV27003B.
 - <c> Re-connect electrical connector D31036P.
 - <d> Re-install FSEU 1, M27001. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - <e> Do the Repair Confirmation at the end of this task.
- <2> If you do not find a problem with the wiring, continue.
- 2) If you find 28V DC at pin F3 of connector DM27001AC, continue.
- (d) Replace FSEU 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 1 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
- (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

805. Slat Primary System Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-20980, 27-20981, 27-20982.

B. Initial Evaluation

- (1) If the PRESENT LEG FAULTS display on the MAT shows LATCHED for the maintenance message 27-20980 or 27-20130, then do these steps:
- (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-81 TASKS 804-805

D633W103-ARO

Page 217
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (b) Remove the Slats/Bypass Clutch Relay, K27001 from the P210 panel. WDM 27-81-17
- (c) Disconnect the ALTN FLAPS ARM switch, S27052 from the P10 panel. WDM 27-81-17
- (d) Do a wiring check between connector DK27001 and connector DS27052. WDM 27-81-17

DS27052	DK27001
pin 2	pin X2

- 1) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Slats/Bypass Clutch Relay, K27001 on the P210 Panel.
- 2) If you do not find a problem with the wiring, then install a new Slats Bypass/Clutch relay, K27001 on the P210 panel.
- (e) Connect the electrical connector, DS27052 to the ALTN FLAPS ARM switch, S27052 on the P10 panel.
- (f) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (g) Use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
 - 1) If the flaps operate with the alternate system, then you corrected the fault.
- (2) If the PRESENT LEG FAULTS display on the MAT does not show LATCHED for the maintenance message 27-20980 or 27-20130 then continue.
- (3) If the PRESENT LEG FAULTS display on the MAT shows LATCHED for the maintenance message 27-21031 or 27-21032, then do these steps:
 - (a) Go to the Maintenance Message Index to find the procedure for the applicable maintenance message 27-21031 or 27-21032.
 - (b) Do the fault isolation procedure for the applicable maintenance message.
- (4) If the PRESENT LEG FAULTS display on the MAT does not show LATCHED for the maintenance message 27-21031 or 27-21032, then continue.
- (5) If the PRESENT LEG FAULTS display on the MAT shows LATCHED for the maintenance message 27-20971 or 27-20972, then do these steps:

NOTE: An open circuit breaker indicates that there can be a shorted primary control valve solenoid.

- (a) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Do the Fault Isolation Procedure - Solenoid Check below.

EFFECTIVITY
ARO ALL

27-81 TASK 805

D633W103-ARO

Page 218
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

(6) If the PRESENT LEG FAULTS display on the MAT does not show LATCHED for the maintenance message 27-20971 or 27-20972, then do these steps:

(a) Cycle the ALTN FLAPS ARM switch on the control stand.

NOTE: This will cause the maintenance message to become INACTIVE.



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

(c) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

1) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure - Hydraulics Check below.

2) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure - Solenoid Check

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

(3) Do a check of the Primary Extend Solenoid on the slat primary control valve, V27003 in the left wheel well:

(a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-81 TASK 805

D633W103-ARO

Page 219
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Disconnect electrical connector DV27003B from the slat primary control valve V27003.
- (c) Measure the resistance between these pairs of pins of the connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-15):
- 1) Pins 9 and 19, specified resistance 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids).
NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.
 - 2) Pins 11 and 15, specified resistance 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids).
NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.
- (d) Do a continuity check between pins 9, 11, 15 and 19 of the connector DV27003B on the slat primary control valve V27003 and structure ground.
- (e) If the resistance between the pins is not in the limit, or if there is continuity to ground, then do these steps:
- 1) Replace the Primary Extend solenoid on the slat primary control valve, V27003.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.
 - 2) Do a check of the resistance between the pins 9 and 19, and pins 11 and 15 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-15).
NOTE: This does a check of the internal wiring on the primary control valve, V27003.
 - a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.
NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- b) If the resistance between the pins is in the limits, then continue.
- 3) Connect electrical connector DV27003B to the slat primary control valve V27003.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-81 TASK 805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 220
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- 5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - 6) Use the primary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
 - 7) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 8) If there is continuity between the pins, or if the MAT shows LATCHED for the maintenance message, then continue.
- (4) Do a check of the Primary Retract Solenoid on the slat primary control valve, V27003 in the left wheel well:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the slat primary control valve V27003.
- (c) Measure the resistance between these pairs of pins of the connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-15):
 - 1) Pins 2 and 17, specified resistance 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids)
NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.
 - 2) Pins 4 and 14, specified resistance 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids)
NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.
- (d) Do a continuity check between pins 2, 4, 14 and 17 of the connector DV27003B on the slat primary control valve V27003 and structure ground.
- (e) If the resistance between the pins is not in the limit, or if there is continuity to ground, then do these steps:
 - 1) Replace the Primary Retract solenoid on the slat primary control valve, V27003.

EFFECTIVITY
ARO ALL

27-81 TASK 805

D633W103-ARO

Page 221
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- 2) Do a check of the resistance between the pins 2 and 17, and pins 4 and 14 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- b) If the resistance between the pins is in the limits, then continue.
- 3) Connect electrical connector DV27003B to the slat primary control valve V27003.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- 5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- 6) Use the primary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 7) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASK 805

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 222
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 8) If there is continuity between the pins, or if the MAT shows LATCHED for the maintenance message, then do the Fault Isolation Procedure - Hydraulics Check below.
- (5) Connect electrical connector DV27003B to the slat primary control valve, V27003 in the left wheel well.
- (6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (7) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

D. Fault Isolation Procedure - Hydraulics Check

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Replace the slat hydraulic motor.
These are the tasks:
Slat Hydraulic Motor Removal, AMM TASK 27-81-33-000-801,
Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
- (2) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue.
- (3) Replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

EFFECTIVITY
ARO ALL

27-81 TASK 805

D633W103-ARO

Page 223
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

806. Slat Primary Extend Solenoid Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20991.

B. Description

- (1) Slats Primary Extend Solenoid circuit is open.

C. Possible Causes

- (1) Slats Primary Extend Solenoid, V2
- (2) Slat Primary Control Valve, V27003
- (3) Wiring
- (4) FSEU 1, M27001

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-81-15
- (2) SSM 27-81-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

EFFECTIVITY
ARO ALL

27-81 TASKS 805-806

D633W103-ARO

Page 224
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



WARNING

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Extend Solenoid as follows:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the Slat Primary Control Valve, V27003 in the Left Wheel Well (WDM 27-81-15).
- (c) Do a Resistance check between pins 9 and 19 of connector DV27003B on the Slat Primary Control Valve, V27003 in the Left Wheel Well.
- (d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the Extend Solenoid on the Slat Primary Control Valve, V27003. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802

EFFECTIVITY
ARO ALL

27-81 TASK 806

D633W103-ARO

Page 225
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Do a Resistance check between pins 9 and 19 of connector DV27003B on the Slat Primary Control Valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the Slat Primary Control Valve, V27003.

- a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then replace the Slat Primary Control Valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801
- Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801

<1> Do the Repair Confirmation at the end of this task.

- b) If the Resistance is in the specified limits, then continue.

- (e) If the Resistance is in the specified limits, then continue.

- (4) Connect electrical connector DV27003B to the Slat Primary Control Valve, V27003, in the Left Wheel Well.

- (5) Do a check for 28V DC at FSEU 1. These are the steps:

- (a) Remove FSEU 1, M27001, from the E1-6 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.

- (b) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (c) Do a check for 28V DC between pin F2 (+) on connector DM27001AC and structure ground (WDM 27-81-15).

- 1) If you do not find 28V DC at pin F2 on connector DM27001AC, then do these steps:
- a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- b) At the P310 Power Management Panel, disconnect electrical connector D31036P.
- c) In the Left Wheel Well, disconnect electrical connector DV27003B from the Slat Primary Control Valve, V27003.
- d) Do a wiring check from the FSEU-1 connector DM27001AC to the Power Management Panel P310 connector D31036P as follows (WDM 27-81-15):

E1-6 Shelf
DM27001AC
pin F2

L Wheel Well
DV27003B
pin 9

EFFECTIVITY
ARO ALL

27-81 TASK 806

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 226
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

L Wheel Well

DV27003B

pin 19 pin 14

P310 Panel

D31036P

- <1> If you find a problem with the wiring, then do these steps:
- <a> Repair the wiring.
 - Re-connect electrical connector DV27003B.
 - <c> Re-connect electrical connector D31036P.
 - <d> Re-install FSEU 1, M27001. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - <e> Do the Repair Confirmation at the end of this task.

<2> If you do not find a problem with the wiring, continue.

2) If you find 28V DC at pin F2 of connector DM27001AC, continue.

(d) Replace FSEU 1, M27001. These are the tasks:

- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
- Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

(1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 1 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

807. Slat Primary Retract Solenoid Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

(1) This task is for maintenance message: 27-21001.

B. Description

(1) Slats Primary Retract Solenoid circuit is open.

EFFECTIVITY
ARO ALL

27-81 TASKS 806-807

D633W103-ARO

Page 227
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Possible Causes

- (1) Slats Primary Retract Solenoid, V4
- (2) Slat Primary Control Valve, V27003
- (3) Wiring
- (4) FSEU 1, M27001

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-81-15
- (2) SSM 27-81-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to retract the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.

EFFECTIVITY
ARO ALL

27-81 TASK 807

D633W103-ARO

Page 228
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task:
Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
(3) Do a wiring check of the Retract Solenoid as follows:
(a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the Slat Primary Control Valve, V27003 in the Left Wheel Well (WDM 27-81-15).
(c) Do a Resistance check between pins 2 and 17 of connector DV27003B on the Slat Primary Control Valve, V27003 in the Left Wheel Well.
(d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the Retract Solenoid on the Slat Primary Control Valve, V27003. These are the tasks:
- Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802
- 2) Do a Resistance check between pins 2 and 17 of connector DV27003B on the Slat Primary Control Valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the Slat Primary Control Valve, V27003.

- a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then replace the Slat Primary Control Valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

EFFECTIVITY
ARO ALL

27-81 TASK 807

D633W103-ARO

Page 229
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801
- Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801

<1> Do the Repair Confirmation at the end of this task.

- b) If the Resistance is in the specified limits, then continue.
- e) If the Resistance is in the specified limits, continue.
- (4) Connect electrical connector DV27003B to the Slat Primary Control Valve, V27003, in the Left Wheel Well.
- (5) Do a check for 28V DC at FSEU 1 as follows:
 - (a) Remove FSEU 1, M27001, from the E1-6 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
 - (b) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (c) Do a check for 28V DC between pin D2 (+) on connector DM27001AC and structure ground (WDM 27-81-15).
 - 1) If you do not find 28V DC at pin D2 on connector DM27001AC, then do these steps:
 - a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- b) At the P310 Power Management Panel, disconnect electrical connector D31036P.
- c) In the Left Wheel Well, disconnect electrical connector DV27003B from the Slat Primary Control Valve, V27003.
- d) Do a wiring check from the FSEU-1 connector DM27001AC to the Power Management Panel P310 connector D31036P as follows (WDM 27-81-15):

E1-6 Shelf	L Wheel Well
DM27001AC	DV27003B
pin D2	pin 2

L Wheel Well	P310 Panel
DV27003B	D31036P
pin 17	pin 14

- <1> If you find a problem with the wiring, then do these steps:
 - <a> Repair the wiring.
 - Re-connect electrical connector DV27003B.
 - <c> Re-connect electrical connector D31036P.
 - <d> Re-install FSEU 1, M27001. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-81 TASK 807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 230
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

<e> Do the Repair Confirmation at the end of this task.

<2> If you do not find a problem with the wiring, continue.

2) If you find 28V DC at pin D2 of connector DM27001AC, continue.

(d) Replace FSEU 1, M27001. These are the tasks:

- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
- Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

(1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 1 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to retract the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
- (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

808. Slat Primary Shutoff Solenoid Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

(1) This task is for maintenance message: 27-21011.

B. Description

(1) Slats Primary Shutoff Solenoid circuit is open.

C. Possible Causes

- (1) Slats Primary Shutoff Solenoid, V1
- (2) Slat Primary Control Valve, V27003
- (3) Wiring
- (4) FSEU 1, M27001

D. Circuit Breakers

(1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASKS 807-808

D633W103-ARO

Page 231
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-81-15
- (2) SSM 27-81-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the primary system to extend or retract the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Shutoff Solenoid as follows:

EFFECTIVITY
ARO ALL

27-81 TASK 808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 232
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003A from the Slat Primary Control Valve, V27003 in the Left Wheel Well (WDM 27-81-15).
- (c) Do a Resistance check between pins 7 and 8 of connector DV27003A on the Slat Primary Control Valve, V27003 in the Left Wheel Well.
- (d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 ohms (for the 883 Series Solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the Shutoff Solenoid on the Slat Primary Control Valve, V27003. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802
- 2) Do a Resistance check between pins 7 and 8 of connector DV27003A on the Slat Primary Control Valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the Slat Primary Control Valve, V27003.

- a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 ohms (for the 883 Series Solenoids), then replace the Slat Primary Control Valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801
- Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801

<1> Do the Repair Confirmation at the end of this task.

- b) If the Resistance is in the specified limits, then continue.

- (e) If the Resistance is in the specified limits, continue.

- (4) Connect electrical connector DV27003A to the Slat Primary Control Valve, V27003, in the Left Wheel Well.
- (5) Do a check for 28V DC at FSEU 1 as follows:
- (a) Remove FSEU 1, M27001, from the E1-6 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.

EFFECTIVITY
ARO ALL

27-81 TASK 808

D633W103-ARO

Page 233
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (b) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (c) Do a check for 28V DC between pin D5 (+) on connector DM27001AC and structure ground (WDM 27-81-15).

- 1) If you do not find 28V DC at pin D5 on connector DM27001AC, then do these steps:
- a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- b) At the P310 Power Management Panel, disconnect electrical connector D31036P.
- c) In the Left Wheel Well, disconnect electrical connector DV27003A from the Slat Primary Control Valve, V27003.
- d) Do a wiring check from the FSEU-1 connector DM27001AC to the Power Management Panel P310 connector D31036P as follows (WDM 27-81-15):

E1-6 Shelf	L Wheel Well
DM27001AC	DV27003A
pin D5	pin 7

L Wheel Well	P310 Panel
DV27003A	D31036P
pin 8	pin 14

- <1> If you find a problem with the wiring, then do these steps:
- <a> Repair the wiring.
- Re-connect electrical connector DV27003A.
- <c> Re-connect electrical connector D31036P.
- <d> Re-install FSEU 1, M27001. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- <e> Do the Repair Confirmation at the end of this task.
- <2> If you do not find a problem with the wiring, continue.

- 2) If you find 28V DC at pin D5 of connector DM27001AC, continue.

- (d) Replace FSEU 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

EFFECTIVITY
ARO ALL

27-81 TASK 808

D633W103-ARO

Page 234
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

809. Left Wing Slat Single FSEU Asymmetry Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20861.

B. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

EFFECTIVITY
ARO ALL

27-81 TASKS 808-809

D633W103-ARO

Page 235
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (1) Replace the slat position sensor, M27103 on the left wing.
These are the tasks:
Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,
Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.
- (2) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 1, M27001.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (5) Do a check of the wiring between FSEU 1 and the slat position sensor, M27103:
 - (a) Open these circuit breakers and install safety tags:
Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Disconnect the connector DM27103 from slat position sensor, M27103.
 - (d) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27103 at the slat position sensor, M27103 (WDM 27-88-11):

DM27001AC	DM27103
pin K4	pin 1
pin J4	pin 2
pin G6	pin 3
pin G7	pin 4
pin F6	pin 5
pin F7	pin 6
 - (e) If you find a problem with the wiring, repair the wiring.
 - (f) Re-install FSEU 1, M27001.
 - (g) Re-connect connector DS27103.

EFFECTIVITY
ARO ALL

27-81 TASK 809

D633W103-ARO

Page 236
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (h) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- 1) If the maintenance message shows NOT ACTIVE (or if the message does not show), then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (6) Look for a broken or disconnected torque tube in the left wing:
- (a) Open this panel to get access to the torque tubes on the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (b) Use the wrench flats on the torque tube outboard of the PDU to manually turn the slat drive system a maximum of four torque tube turns.
- NOTE: This will move the slats approximately 1/2 inch.
- (c) Look at the slats on the left wing for a pair of slats that do not fair or a slat that is skewed.
- NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.
- (d) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
- (e) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
- (f) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
- (g) Remove these access panels for the offset gearboxes on the lower surface of the left wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- (7) If you find a broken or disconnected torque tube, replace the applicable torque tube or torque tube support:
- (a) If it is necessary, replace a torque tube on the inboard side of the wing

EFFECTIVITY
ARO ALL

27-81 TASK 809

D633W103-ARO

Page 237
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.

- (b) If it is necessary, replace a torque tube on the outboard side of the wing.

These are the tasks:

Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.

- (c) If it is necessary, replace a torque tube support on the inboard side of the wing.

These are the tasks:

Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.

- (d) If it is necessary, replace a torque tube support on the outboard side of the wing.

These are the tasks:

Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.

- (8) Install these access panels:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- (9) Close this panel below the PDU:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (10) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

810. Slat Uncommanded Motion Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21021.

EFFECTIVITY
ARO ALL

27-81 TASKS 809-810

D633W103-ARO

Page 238
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. General

- (1) You can also use this task to isolate the fault if the SLATS PRIMARY FAIL (CAUTION) EICAS message is shown without a maintenance message.
 - (a) If there is no maintenance message, and you can not correct the fault, then do this task also: Slat Uncommanded Motion Problems FSEU 2 - Fault Isolation, 27-82 TASK 811.

C. Initial Evaluation

- (1) Make sure the position of the flap control lever agrees with the position of the flaps.
- (2) Make sure the ALTN FLAPS control switch is in the OFF position.
- (3) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: Use a single AC Motor Pump (ACMP) to supply power to the center system. This will cause the slats to move more slowly if there is not an intermittent fault. If you use two ACMPs or an Air Driven Pump (ADP) the slats will move further before the FSEUs stop them.



MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE SLATS. THE SLATS CAN MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure - Uncommanded Motion below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then continue.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: Use an Air Driven Pump (ADP) to move the slats. This will allow the slats to move at their usual rate.

- (7) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

EFFECTIVITY
ARO ALL

27-81 TASK 810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 239
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (8) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure - Stops Out of Detent below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.
- (9) Do this ground test on the MAT for FSEU 1: Slat Primary Control Valve Test, AMM TASK 27-81-05-740-801.

D. Fault Isolation Procedure - Uncommanded Motion

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (6) Use the primary system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

EFFECTIVITY
ARO ALL

27-81 TASK 810

D633W103-ARO

Page 240
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (7) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

E. Fault Isolation Procedure - Stops Out of Detent

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Low Speed solenoid on the slat primary control valve, V27003 in the left wheel well:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the slat primary control valve, V27003.
- (c) Do a check of the resistance between pins 8 and 18 of connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-15):
- (d) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the Low Speed solenoid on the slat primary control valve V27003.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

EFFECTIVITY
ARO ALL

27-81 TASK 810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 241
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Do a check of the resistance between pins 8 and 18 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- (e) Connect electrical connector DV27003B to the slat primary control valve V27003.
(f) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (g) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
(h) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (i) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
(j) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (4) Do this check of the adjustment of the slat position sensors:
- (a) Make sure the leading edge slats are in the retracted position.
(b) Look at the SLAT POS L1, R1, L2 and R2 indications on the FLAP/SLAT maintenance page on EICAS.
(c) If one of the slat position indications is not less than 11.65, then replace the applicable slat position sensor.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

EFFECTIVITY
ARO ALL

27-81 TASK 810

D633W103-ARO

Page 242
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

NOTE: The slat position sensor for SLAT POS L1 and L2 are in the left wing. The slat position sensor for SLAT POS R1 and R2 are in the right wing.



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (d) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (e) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (f) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

811. Slat Secondary System Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21031.

B. Initial Evaluation

- (1) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

EFFECTIVITY
ARO ALL

27-81 TASKS 810-811

D633W103-ARO

Page 243
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (a) If the circuit breakers were not closed, use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.
- NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breakers were closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do this check to see if the slat drive system is locked:
- (a) Use the primary system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- (b) If the slats do not operate with the primary system, then use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802
- (c) If the slats do not operate with the primary or the alternate system, then the slat drive system is locked.
- (d) If the slats operate with the primary or the alternate system, then the slat drive system is not locked.
- (3) If the slat drive system is locked, then do these steps:
- (a) Open this access panel to get access to the slat power drive unit (PDU):
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 511AB | Leading Edge PDU Panel |
- (b) Look at the torque trip indicators on the slat PDU to see if the drive system is locked in one of the wings.
- (c) If neither of the torque trip indicators are extended, disconnect the torque tubes from the slat PDU.

EFFECTIVITY
ARO ALL

27-81 TASK 811

D633W103-ARO

Page 244
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Use the wrench flats on the torque tube on the outboard side of the PDU to manually extend and retract the left wing slats.
 - (e) Use a LE slat drive torque tube coupling adapter, SPL-1694 on the torque tube on the inboard side of the PDU to manually extend and retract the right wing slats.
 - (f) If you can extend and retract the slats on each wing, do these steps:
 - 1) Do this task: Slat Electric Motor Removal, AMM TASK 27-81-34-000-801.
 - 2) Use a LE slat drive torque tube coupling adapter, SPL-1694 to try to turn the slat power drive unit (PDU) in the extend and retract directions.
 - 3) If you can turn the PDU, then install a new slat electric motor, B27001. To install it, do this task: Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
 - 4) If you cannot turn the PDU, do this task: Slat Hydraulic Motor Removal, AMM TASK 27-81-33-000-801.
 - 5) Use a LE slat drive torque tube coupling adapter, SPL-1694 to try to turn the slat power drive unit (PDU) in the extend and retract directions.
 - 6) If you cannot turn the PDU, then replace the slat PDU.

These are the tasks:

Slat Power Drive Unit (PDU) Removal, AMM TASK 27-81-31-000-801,
Slat Power Drive Unit (PDU) Installation, AMM TASK 27-81-31-400-801.
 - 7) Try to turn the output shaft on the slat hydraulic motor.
 - 8) If you can turn the output shaft on the hydraulic motor, then replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - 9) If you cannot turn the output shaft on the slat hydraulic motor, then install a new slat hydraulic motor. To install it, do this task: Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
 - 10) If it is necessary, re-install the slat hydraulic motor. To install it, do this task: Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
 - 11) If it is necessary, re-install the slat electric motor, B27003. To install it, do this task: Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
 - (g) If one of the torque trip indicators is extended or if you cannot extend and retract the slats on one of the wings, replace the gearbox where the slat drive system is locked.
 - (h) Connect the torque tubes to the slat PDU.
 - (i) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.
 - (j) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.
- NOTE:** Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASK 811

D633W103-ARO

Page 245
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message shows on the MAT, then continue.
- (4) If the slats do not operate with the alternate system, then do a check of the electrical power to the slat electric motor, B27001:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (b) Open this access panel to get access to the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (c) Disconnect the electrical connector, DB27001 from the slat electric motor, B27001.
- (d) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (e) Push the ALT FLAPS ARM switch on the control stand to arm the alternate control system.
- (f) Do a check for 28 VDC between pin 6 of connector DB27001 and structure ground (WDM 27-81-17).
- (g) Turn the ALT FLAPS control switch to the EXT position.
- (h) With the ALT FLAPS control switch in the EXT position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27001 (WDM 27-81-18).
- (i) Turn the ALT FLAPS control switch to the RET position.
- (j) With the ALT FLAPS control switch in the RET position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27001 (WDM 27-81-18).

EFFECTIVITY
ARO ALL

27-81 TASK 811

D633W103-ARO

Page 246
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (k) If there is 115 VAC at pins 1, 2 and 3 and 28 VDC at pin 6 of connector DB27001, then replace the slat electric motor, B27001.

These are the tasks:

Slat Electric Motor Removal, AMM TASK 27-81-34-000-801,

Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.

- 1) Turn the ALT FLAPS control switch to the OFF position.
 - 2) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.
 - 3) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
 - 4) Use the alternate system to extend and retract the slat. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
 - 5) If the slat operate with the alternate system, then you corrected the fault.
- (l) If there is not 28 VDC at pin 6 of connector DB27001, then do this wiring check between the slat electric motor, B27001 and the Slats Bypass/Clutch Relay, K27001 on the P210 panel:
- 1) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel (WDM 27-81-17).
 - 2) Do a wiring check between these pins of connector DB27001 on the slat electric motor, B27001 and connector DK27001 on the P210 panel (WDM 27-81-17):

DB27001

DK27001

pin 6 pin B2

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 4) If you do not find a problem with the wiring, then install a new Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 5) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
 - 6) Use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
 - a) If the flaps operate with the alternate system, then you corrected the fault
- (m) If there is not 115 VAC at pins 1, 2 and 3 then do this wiring check between the slat electric motor, B27001 and the Slats Retract Relay, K27005 on the P210 panel:
- 1) Remove the Slats Retract Relay, K27005 from the P210 panel (WDM 27-81-18).
 - 2) Do a wiring check between these pins of connector DB27001 on the slat electric motor, B27001 and connector DK27005 on the P210 panel (WDM 27-81-18):

DB27001

DK27005

pin 1 pin A2

pin 2 pin C2

pin 3 pin B2

- 3) If you find a problem with the wiring, then repair the wiring.

EFFECTIVITY
ARO ALL

27-81 TASK 811

D633W103-ARO

Page 247
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) Reinstall the Slats Retract Relay, K27005 on the P210 panel.
- 4) If you do not find a problem with the wiring, then do this wiring check between the Slats Retract Relay, K27005 and the Slats Extend Relay K27003 on the P210 panel:
 - a) Remove the Slats Extend Relay, K27003 from the P210 panel (WDM 27-81-18).
 - b) Do a wiring check between these pins of connector DK27003 and connector DK27005 on the P210 panel (WDM 27-81-18):

DK27003		DK27005	
pin A1	.....	pin A3	
pin A3	.....	pin A1	
pin B1	.....	pin B3	
pin B3	.....	pin C1	
pin C1	.....	pin C3	
pin C3	.....	pin B1	

- c) If you find a problem with the wiring, then repair the wiring.
- d) Reinstall the Slats Retract Relay, K27005 on the P210 panel.
- e) Reinstall the Slats Extend Relay, K27003 on the P210 panel.
- 5) If you do not find a problem with the wiring, then install a new Slats Extend Relay, K27003 and a new Slats Retract Relay, K27005 on the P210 panel.
- 6) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
- 7) Use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
 - a) If the slats operate with the alternate system, then you corrected the fault
- (n) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
- (o) Turn the ALT FLAPS control switch to the OFF position.
- (p) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.
- (q) Close this access panel on the lower surface of the left wing:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel
- (5) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-81 TASK 811

D633W103-ARO

Page 248
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (6) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (7) Remove FSEU 1, M27001 from the E1-6 shelf.
- (8) Do this check of the wiring between the Slats Bypass/Clutch Relay, K27001 and FSEU 1, M27001:
- (a) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel (WDM 27-81-17).
- (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27001 on the P210 panel (WDM 27-81-17):

DM27001AA	DK27001
pin G5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).

EFFECTIVITY
ARO ALL

27-81 TASK 811

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 249
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (9) Open these circuit breakers and install safety tags:

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (10) Do this check of the wiring between the Slats Extend Relay, K27003 and FSEU 1, M27001:
- (a) Remove the Slats Extend Relay, K27003 from the P210 panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27003 on the P210 panel (WDM 27-81-17):

DM27001AA	DK27003
pin E2	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Re-install the Slats Extend Relay, K27003 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

EFFECTIVITY
ARO ALL

27-81 TASK 811

D633W103-ARO

Page 250
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-17).
- (11) Do this check of the wiring between the Slats Retract Relay, K27005 and FSEU 1, M27001:
 - (a) Remove the Slats Retract Relay, K27005 from the P210 panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27005 on the P210 panel (WDM 27-81-17):

DM27001AA	DK27005
pin G2	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Re-install the Slats Retract Relay, K27005 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

Row	Col	Number	Name
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

Row	Col	Number	Name
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-17).

EFFECTIVITY
ARO ALL

27-81 TASK 811

D633W103-ARO

Page 251
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (12) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (14) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

812. Slat Secondary System Auto Test Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21041.

B. Initial Evaluation

- (1) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-81 TASKS 811-812

D633W103-ARO

Page 252
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (a) If the circuit breakers were not closed, use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.
- NOTE:** Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breakers were closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do a check of the electrical power to the slat electric motor, B27001:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (b) Open this panel to get access to the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (c) Disconnect the electrical connector, DB27001 from the slat electric motor, B27001.

EFFECTIVITY
ARO ALL

27-81 TASK 812

D633W103-ARO

Page 253
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (e) Push the ALT FLAPS ARM switch on the control stand to arm the alternate control system.
- (f) Do a check for 28 VDC between pin 6 of connector DB27001 and structure ground (WDM 27-81-17).
- (g) Turn the ALT FLAPS control switch to the EXT position.
- (h) With the ALT FLAPS control switch in the EXT position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27001 (WDM 27-81-18).
- (i) Turn the ALT FLAPS control switch to the RET position.
- (j) With the ALT FLAPS control switch in the RET position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27001 (WDM 27-81-18).
- (k) If there is 115 VAC at pins 1, 2 and 3 and 28 VDC at pin 6 of connector DB27001, then replace the slat electric motor, B27001.

These are the tasks:

Slat Electric Motor Removal, AMM TASK 27-81-34-000-801,

Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.

- 1) Turn the ALT FLAPS control switch to the OFF position.
- 2) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.
- 3) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
- 4) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (l) If there is not 28 VDC at pin 6 of connector DB27001, then do this wiring check between the slat electric motor, B27001 and the Slats Bypass/Clutch Relay, K27001 on the P210 panel:

EFFECTIVITY
ARO ALL

27-81 TASK 812

D633W103-ARO

Page 254
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 1) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel (WDM 27-81-17).
- 2) Do a wiring check between these pins of connector DB27001 on the slat electric motor, B27001 and connector DK27001 on the P210 panel (WDM 27-81-17):

DB27001	DK27001
pin 6	pin B2

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 4) If you do not find a problem with the wiring, then install a new Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 5) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
 - 6) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.
- NOTE:** Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (m) If there is not 115 VAC at pins 1, 2 and 3 then do this wiring check between the slat electric motor, B27001 and the Slats Retract Relay, K27005 on the P210 panel:
- 1) Remove the Slats Retract Relay, K27005 from the P210 panel (WDM 27-81-18).
 - 2) Do a wiring check between these pins of connector DB27001 on the slat electric motor, B27001 and connector DK27005 on the P210 panel (WDM 27-81-18):

DB27001	DK27005
pin 1	pin A2
pin 2	pin C2
pin 3	pin B2

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Slats Retract Relay, K27005 on the P210 panel.
- 4) If you do not find a problem with the wiring, then do this wiring check between the Slats Retract Relay, K27005 and the Slats Extend Relay K27003 on the P210 panel:
 - a) Remove the Slats Extend Relay, K27003 from the P210 panel (WDM 27-81-18).
 - b) Do a wiring check between these pins of connector DK27003 and connector DK27005 on the P210 panel (WDM 27-81-18):

EFFECTIVITY
ARO ALL

27-81 TASK 812

D633W103-ARO

Page 255
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

DK27003	DK27005
pin A1	pin A3
pin A3	pin A1
pin B1	pin B3
pin B3	pin C1
pin C1	pin C3
pin C3	pin B1

- c) If you find a problem with the wiring, then repair the wiring.
 - d) Reinstall the Slats Retract Relay, K27005 on the P210 panel.
 - e) Reinstall the Slats Extend Relay, K27003 on the P210 panel.
- 5) If you do not find a problem with the wiring, then install a new Slats Extend Relay, K27003 and a new Slats Retract Relay, K27005 on the P210 panel.
- 6) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
- 7) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (n) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
- (o) Turn the ALT FLAPS control switch to the OFF position.
- (p) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.
- (q) Close this access panel on the lower surface of the left wing:

Number	Name/Location
511AB	Leading Edge PDU Panel

- (3) Do this check of the wiring between the Slats Bypass/Clutch Relay, K27001 and FSEU 1, M27001:
- (a) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27001 on the P210 panel (WDM 27-81-17):

DM27001AA	DK27001
pin G5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.

EFFECTIVITY
ARO ALL

27-81 TASK 812

D633W103-ARO

Page 256
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
- (4) Open these circuit breakers and install safety tags:

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (5) Do this check of the wiring between the Slats Extend Relay, K27003 and FSEU 1, M27001:
- (a) Remove the Slats Extend Relay, K27003 from the P210 panel (WDM 27-81-17).
- (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27003 on the P210 panel (WDM 27-81-17):

DM27001AA	DK27003
pin E2	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Re-install the Slats Extend Relay, K27003 on the P210 panel.

EFFECTIVITY
ARO ALL

27-81 TASK 812

D633W103-ARO

Page 257
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-17).
- (6) Do this check of the wiring between the Slats Retract Relay, K27005 and FSEU 1, M27001:
- (a) Remove the Slats Retract Relay, K27005 from the P210 panel (WDM 27-81-17).
- (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27005 on the P210 panel (WDM 27-81-17):

DM27001AA DK27005

pin G2 pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Re-install the Slats Retract Relay, K27005 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-81 TASK 812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 258
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-17).
- (7) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (8) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-81 TASK 812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 259
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (9) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

813. Slat Single FSEU Asymmetry Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21051.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Look for a broken or disconnected torque tube:
- (a) Find which wing has the broken or disconnected torque tube:
- 1) Look at the 27-FLAP/SLAT maintenance page on the EICAS.
 - 2) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 511AB | Leading Edge PDU Panel |
- 3) Use the wrench flats on the outboard torque tube to turn the slat drive system.
 - 4) If the SLAT POS L 1 indication on the maintenance page does not change when you turn the drive system, then there is a broken or disconnected torque tube in the left wing.
 - 5) If the SLAT POS R 1 indication on the maintenance page does not change when you turn the drive system, then there is a broken or disconnected torque tube in the right wing.
- (b) If there is a broken or disconnected torque tube in the right wing, do these steps until you find the torque tube:
- 1) Look at the torque tubes and gearboxes that go through the fuselage.
 - 2) Disconnect the inboard torque tube from the slat PDU.

EFFECTIVITY
ARO ALL

27-81 TASKS 812-813

D633W103-ARO

Page 260
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Use a LE slat drive torque tube coupling adapter, SPL-1694 on the torque tube to manually turn the right wing drive system a maximum of four torque tube turns.

NOTE: This will move the slats approximately 1/2 inch.

- 4) Look at the slats on the right wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.

- 5) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
- 6) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
- 7) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
- 8) Remove these access panels for the offset gearboxes on the lower surface of the right wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- 9) Connect the inboard torque tube to the slat PDU.

- (c) If there is a broken or disconnected torque tube in the left wing, do these steps until you find the torque tube:

- 1) Disconnect the outboard torque tube from the slat PDU.
- 2) Use the wrench flats to manually turn the left wing drive system a maximum of four torque tube turns.

NOTE: This will move the slats approximately 1/2 inch.

- 3) Look at the slats on the left wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.

- 4) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
- 5) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
- 6) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.

EFFECTIVITY
ARO ALL

27-81 TASK 813

D633W103-ARO

Page 261
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 7) Remove these access panels for the offset gearboxes on the lower surface of the left wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- 8) Connect the inboard torque tube to the slat PDU.

- (2) Replace the applicable torque tube or torque tube support:

- (a) If it is necessary, replace a torque tube in the cargo compartment.

These are the tasks:

Cargo Compartment Slat Torque Tube Removal, AMM TASK 27-81-38-000-803,
Cargo Compartment Slat Torque Tube Installation, AMM TASK 27-81-38-400-803.

- (b) If it is necessary, replace a torque tube on the inboard side of the wing.

These are the tasks:

Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.

- (c) If it is necessary, replace a torque tube on the outboard side of the wing.

These are the tasks:

Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.

- (d) If it is necessary, replace a leading edge pressure seal.

These are the tasks:

Leading Edge Pressure Seal Removal, AMM TASK 27-81-39-000-804,
Leading Edge Pressure Seal Installation, AMM TASK 27-81-39-400-804.

- (e) If it is necessary, replace a torque tube support on the inboard side of the wing.

These are the tasks:

Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.

- (f) If it is necessary, replace a torque tube support on the outboard side of the wing.

These are the tasks:

Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.

- (g) If it is necessary, replace a torque tube support in the cargo compartment.

These are the tasks:

EFFECTIVITY
ARO ALL

27-81 TASK 813

D633W103-ARO

Page 262
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Cargo Compartment Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-803,
Cargo Compartment Torque Tube Support Installation, AMM TASK 27-81-39-400-803.

(3) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.

(4) Install the applicable access panels:

(a) Close this access panel below the PDU:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

(b) On the right wing,

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(c) On the left wing,

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(5) Replace the slat position sensor 1L, M27103 on the left wing.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

(6) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only.

(a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

(b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

(7) Replace the slat position sensor 1R, M27104 on the right wing.

These are the tasks:

EFFECTIVITY
ARO ALL

27-81 TASK 813

D633W103-ARO

Page 263
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,
Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (8) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only.
- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (9) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (10) Remove FSEU 1, M27001 from the E1-6 shelf.
- (11) Do a check of the wiring between FSEU 1 and the slat position sensor 1L, M27103:
- (a) Disconnect the connector DM27103 from slat position sensor 1L, M27103.
 - (b) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27103 at the slat position sensor 1L, M27103 (WDM 27-88-11):

DM27001AC	DM27103
pin K4	pin 1
pin J4	pin 2
pin G6	pin 3
pin G7	pin 4
pin F6	pin 5
pin F7	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27103.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you did not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-81 TASK 813

D633W103-ARO

Page 264
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (12) Connect the connector DM27103 to slat position sensor 1L, M27103.
- (13) Do a check of the wiring between FSEU 1 and the slat position sensor 1R, M27104:
- (a) Disconnect the connector DM27104 from slat position sensor 1R, M27104.
 - (b) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27104 at the slat position sensor 1R, M27104 (WDM 27-88-11):

DM27001AA	DM27104
pin A4	pin 1
pin B4	pin 2
pin D6	pin 3
pin D7	pin 4
pin E6	pin 5
pin E7	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27104.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (d) If you did not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (14) Connect the connector DM27104 to slat position sensor 1R, M27104.
- (15) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (16) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (17) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-81 TASK 813

D633W103-ARO

Page 265
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

814. Left and Right Slat Position Sensor Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21161.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Use the alternate system to retract the slats to the retracted position. To retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
 - (3) Replace the other slat position sensor 1L, M27103 or 1R, M27104.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (5) Remove FSEU 1, M27001 from the E1-6 shelf.
- (6) Do a wiring check between FSEU 1, M27001 and slat position sensor 1R, M27104 on the right wing:
 - (a) Disconnect connector DM27104 from slat position sensor 1R, M27104 on the right wing.
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DM27104 at the slat position sensor 1R, M27104 on the right wing (WDM 27-88-11):

EFFECTIVITY
ARO ALL

27-81 TASK 814

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 266
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AA	DM27104
pin A4	pin 1
pin B4	pin 2
pin D6	pin 3
pin D7	pin 4
pin E6	pin 5
pin E7	pin 6

(c) If you find a problem with the wiring, do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 1, M27001.
- 3) Re-connect connector DM27104.
- 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (e) Re-connect connector DM27104 to slat position sensor R1, M27104 on the right wing.
- (7) Do a wiring check between FSEU 1, M27001 and the slat position sensor 1L, M27103 on the left wing:
 - (a) Disconnect connector DM27103 from slat position sensor 1L, M27103 on the left wing.
 - (b) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DM27103 at the slat position sensor 1L, M27103 on the left wing (WDM 27-88-11):

DM27001AC	DM27103
pin K4	pin 1
pin J4	pin 2
pin G6	pin 3
pin G7	pin 4
pin F6	pin 5
pin F7	pin 6

(c) If you find a problem with the wiring, do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 1, M27001.
- 3) Re-connect connector DM27103.

EFFECTIVITY
ARO ALL

27-81 TASK 814

D633W103-ARO

Page 267
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.

(d) Re-connect connector DM27103 to slat position sensor L1, M27103 on the left wing.

(8) Re-install FSEU 1, M27001 on the E1-6 shelf.

(9) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

————— **END OF TASK** —————

815. Left Slat Position Sensor Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

(1) This task is for maintenance message: 27-21171.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

(1) Replace the slat position sensor 1L, M27103 on the left wing.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 1, M27001 and slat position sensor 1L, M27103:
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Disconnect connector DM27103 from slat position sensor 1L, M27103 on the left wing.

EFFECTIVITY
ARO ALL

27-81 TASKS 814-815

D633W103-ARO

Page 268
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DM27103 at the slat position sensor 1L, M27103 on the left wing (WDM 27-88-11):

DM27001AC	DM27103
pin K4	pin 1
pin J4	pin 2
pin G6	pin 3
pin G7	pin 4
pin F6	pin 5
pin F7	pin 6

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27103.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (f) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (a) Re-connect connector DM27103 to slat position sensor 1L, M27103 on the left wing.
 - (b) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (c) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.

————— END OF TASK —————

816. Right Slat Position Sensor Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21181.

EFFECTIVITY
ARO ALL

27-81 TASKS 815-816

D633W103-ARO

Page 269
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat position sensor 1R, M27104 on the right wing.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 1, M27001 and slat position sensor 1R, M27104:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect connector DM27104 from slat position sensor 1R, M27104 on the right wing.
 - (c) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DM27104 at the slat position sensor 1R, M27104 on the right wing (WDM 27-88-11):

<u>DM27001AA</u>		<u>DM27104</u>	
pin A4	.....	pin 1	
pin B4	.....	pin 2	
pin D6	.....	pin 3	
pin D7	.....	pin 4	
pin E6	.....	pin 5	
pin E7	.....	pin 6	

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27104.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-81 TASK 816

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 270
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (f) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (a) Re-connect connector DM27104 to slat position sensor 1R, M27104 on the right wing.
 - (b) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (c) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

817. Slats Relay K27001 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20731.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).

EFFECTIVITY
ARO ALL

27-81 TASKS 816-817

D633W103-ARO

Page 271
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel.
 - (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27001 on the P210 panel (WDM 27-81-17):

DM27001AA	DK27001
pin G5	pin X2
- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
 - 3) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
 - 5) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

818. Slats Secondary Auto Test, Relay K27001 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20741.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

EFFECTIVITY
ARO ALL

27-81 TASKS 817-818

D633W103-ARO

Page 272
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
- (a) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel.
- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27001 on the P210 panel (WDM 27-81-17):

DM27001AA	DK27001
pin G5	pin X2

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
- 3) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
- 4) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 5) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

———— **END OF TASK** ————

819. Slats Relay K27003 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20771.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.

EFFECTIVITY
ARO ALL

27-81 TASKS 818-819

D633W103-ARO

Page 273
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

Row	Col	Number	Name
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector D21039P on the P210 panel (WDM 27-81-17):

DM27001AA	D21039P
pin E2	pin 16

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
 - 3) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
 - 4) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-81 TASK 819

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 274
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

820. Slats Secondary Auto Test, Relay K27003 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20781.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-17).
- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
- (a) Remove FSEU 1, M27001 from the E1-6 shelf.
- (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector D21039P on the P210 panel (WDM 27-81-17):

DM27001AA	D21039P
pin E2	pin 16

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-install FSEU 1, M27001 on the E1-6 shelf.

EFFECTIVITY
ARO ALL

27-81 TASK 820

D633W103-ARO

Page 275
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 4) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

END OF TASK

821. Slats Relay K27005 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20811.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector D21039P on the P210 panel (WDM 27-81-17):

EFFECTIVITY
ARO ALL

27-81 TASKS 820-821

D633W103-ARO

Page 276
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AA

D21039P

pin G2 pin 17

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
 - 3) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
 - 4) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

822. Slats Secondary Auto Test, Relay K27005 Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20821.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-17).

EFFECTIVITY
ARO ALL

27-81 TASKS 821-822

D633W103-ARO

Page 277
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector D21039P on the P210 panel (WDM 27-81-17):

DM27001AA	D21039P
pin G2	pin 17
- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001 on the E1-6 shelf.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 4) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

823. Primary Slats Operate Fast Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-25041, 27-25061.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

EFFECTIVITY
ARO ALL

27-81 TASKS 822-823

D633W103-ARO

Page 278
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (3) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

824. Primary Slats Extend Slow Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25031.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.

NOTE: This fault can occur if there is not sufficient hydraulic power available. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power. The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the slats.

- (a) If the maintenance message does not show on the ground test display, then do the Fault Isolation Procedure - Intermittent Extend Solenoid Problem below.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Extend Problem below.

C. Fault Isolation Procedure - Intermittent Extend Solenoid Problem



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

EFFECTIVITY
ARO ALL

27-81 TASKS 823-824

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 279
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Do a wiring check of the Primary Extend solenoid on the slat primary control valve, V27003 in the left main wheel well:

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the slat primary control valve, V27003 in the left wheel well.
- (c) Do a check of the resistance between pins 9 and 19 of connector DV27003B on the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):
- (d) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the Primary Extend solenoid on the slat primary control valve, V27003.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- 2) Do a check of the resistance between pins 9 and 19 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- (e) Connect electrical connector DV27003B to the slat primary control valve, V27003 in the left wheel well.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASK 824

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 280
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (g) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- 1) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Extend Problem below.
 - 2) If the maintenance message does not show on the ground test display, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

D. Fault Isolation Procedure - Slow Extend Problem



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the slats. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.
- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-81 TASK 824

D633W103-ARO

Page 281
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (6) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
- (7) Remove FSEU 1, M27001 from the E1-6 shelf.
- (8) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

DM27001AC	DV27003B
pin F3	pin 8

- (a) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASK 824

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 282
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (9) Re-install FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (10) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (11) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (12) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (13) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASK 824

D633W103-ARO

Page 283
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

825. Primary Slats Retract Slow Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25051.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.

NOTE: This fault can occur if there is not sufficient hydraulic power available. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power. The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the slats.

- (a) If the maintenance message does not show on the ground test display, then do the Fault Isolation Procedure - Intermittent Retract Solenoid Problem below.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Retract Problem below.

C. Fault Isolation Procedure - Intermittent Retract Solenoid Problem



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Primary Retract solenoid on the slat primary control valve, V27003 in the left main wheel well:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASKS 824-825



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the slat primary control valve, V27003 in the left wheel well.
- (c) Do a check of the resistance between pins 2 and 17 of connector DV27003B on the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):
- (d) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the Primary Retract solenoid on the slat primary control valve, V27003.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.
- 2) Do a check of the resistance between pins 2 and 17 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- (e) Connect electrical connector DV27003B to the slat primary control valve, V27003 in the left wheel well.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (g) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - 1) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Retract Problem below.

EFFECTIVITY
ARO ALL

27-81 TASK 825

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 285
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

D. Fault Isolation Procedure - Slow Retract Problem



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the slats. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.



**777-200/300
FAULT ISOLATION MANUAL**

- (5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (6) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
- (7) Remove FSEU 1, M27001 from the E1-6 shelf.
- (8) Do this wiring check between the Low Speed Solenoid and FSEU 1:
- (a) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

DM27001AC	DV27003B
pin F3	pin 8

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, or the maintenance message shows on the ground test display, then continue.
- (9) Do this wiring check between the Retract Solenoid and FSEU 1:

EFFECTIVITY
ARO ALL

27-81 TASK 825

D633W103-ARO

Page 287
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

DM27001AC	DV27003B
pin D2	pin 2

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (10) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (11) Re-install FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (13) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.

These are the tasks:

EFFECTIVITY
ARO ALL

27-81 TASK 825

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 288
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- (b) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.

- (a) If the maintenance message shows on the ground test display, replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (15) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.

- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

 WARNING	OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (16) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

826. Primary Slats Low Speed Extend Slow Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25071.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-81 TASKS 825-826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 289
Sep 05/2017

777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the center hydraulic system is not pressurized, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (5) Replace the Primary Extend solenoid on the slat primary control valve, V27003.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (7) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.

EFFECTIVITY
ARO ALL

27-81 TASK 826



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (b) If the MAT shows PASSED after the ground test, then continue.
- (8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (9) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (10) Do a check of the internal wiring in the primary control valve, V27003 for the Primary Extend solenoid:
 - (a) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
 - (b) Do a check of the resistance between pins 9 and 19 of connector DV27003B on the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):
 - (c) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- 2) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
- 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASK 826

D633W103-ARO

Page 291
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - d) If the resistance between the pins is in the limit, or if the maintenance message shows on the ground test display, then continue.
- (11) Replace the slat hydraulic motor.

These are the tasks:

Slat Hydraulic Motor Removal, AMM TASK 27-81-33-000-801,
Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.

 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (12) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (13) Remove FSEU 1, M27001 from the E1-6 shelf.
- (14) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

DM27001AC	DV27003B
pin F2	pin 9

- (a) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASK 826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 292
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (15) Do a wiring check between these pins on connector D31036P at the P310 standby power management panel and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

D31036P	DV27003B
pin 14	pin 19

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (16) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (17) Re-connect connector DV27003B to the slat primary control valve, V27003.

EFFECTIVITY
ARO ALL

27-81 TASK 826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 293
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (18) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (19) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (20) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— END OF TASK —————

827. Primary Slats Low Speed Operate Fast Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-25081, 27-25101.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-81 TASKS 826-827

D633W103-ARO

Page 294
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the Low Speed solenoid on the slat primary control valve, V27003.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.
 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - (b) If the MAT shows PASSED after the ground test, then continue.
 - (b) If the MAT shows PASSED after the ground test, then continue.
- (6) Open these circuit breakers and install safety tags:
Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1
- (7) Do a check of the internal wiring in the primary control valve, V27004 for the Low Speed solenoid:
 - (a) Disconnect electrical connector DV27003B from the slat primary control valve, V27003 in the left wheel well.

EFFECTIVITY
ARO ALL

27-81 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 295
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Do a check of the resistance between pins 8 and 18 of connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-15):
- (c) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- 2) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
- 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 5) If the resistance between the pins is in the limit, or if the maintenance message shows on the ground test display, then continue.

- (8) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (9) Remove FSEU 1, M27001 from the E1-6 shelf.
- (10) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

DM27001AC	DV27003B
pin F3	pin 8

- (a) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003B.

EFFECTIVITY
ARO ALL

27-81 TASK 827

D633W103-ARO

Page 296
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (11) Do a wiring check between these pins on connector D31036P at the P310 standby power management panel and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

D31036P	DV27003B
pin 14	pin 18

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (12) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-81 TASK 827

D633W103-ARO

Page 297
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (13) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (14) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (15) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, slats Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (16) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

END OF TASK

828. Primary Slats Low Speed Retract Slow Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25091.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the center hydraulic system is not pressurized, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

EFFECTIVITY
ARO ALL

27-81 TASKS 827-828

D633W103-ARO

Page 298
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (5) Replace the Primary Retract solenoid on the slat primary control valve, V27003.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (7) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.
- These are the tasks:
- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
- Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASK 828

D633W103-ARO

Page 298.1
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) If the maintenance message shows on the ground test display, then continue.
- (b) If the MAT shows PASSED after the ground test, then continue.
- (8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (9) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (10) Do a check of the internal wiring in the primary control valve, V27003 for the Primary Retract solenoid:
 - (a) Disconnect electrical connector DV27003B from the slat primary control valve, V27003 in the left wheel well.
 - (b) Do a check of the resistance between pins 2 and 17 of connector DV27003B on the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):
 - (c) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- 2) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
- 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If the resistance between the pins is in the limit, or if the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-81 TASK 828

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.2
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (11) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (12) Remove FSEU 1, M27001 from the E1-6 shelf.
- (13) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

DM27001AC	DV27003B
pin D2	pin 2

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (14) Do a wiring check between these pins on connector D31036P at the P310 standby power management panel and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

D31036P	DV27003B
pin 14	pin 17

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003B.

EFFECTIVITY
ARO ALL

27-81 TASK 828

D633W103-ARO

Page 298.3
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (15) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (16) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (17) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (18) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (19) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

829. Secondary Slats Extend Slow Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25111.

EFFECTIVITY
ARO ALL

27-81 TASKS 828-829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.4
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, continue.
- (2) Use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
 - (a) If the slats do not operate in alternate mode, then replace the slat electric motor, B27001.

These are the tasks:

Slat Electric Motor Removal, AMM TASK 27-81-34-000-801,

Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.

 - 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, or if the slats operate in alternate mode, continue.
- (3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - (a) If the MAT does not show PASSED after the ground test, then replace FSEU 1, M27001.

These are the tasks:

EFFECTIVITY
ARO ALL

27-81 TASK 829

D633W103-ARO

Page 298.5
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the MAT shows PASSED after the ground test, then continue.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (5) Remove FSEU 1, M27001 from the E1-6 shelf.
- (6) Do this check of the slats bypass/clutch relay, K27001:
 - (a) Remove the slats bypass/clutch relay, K27001 from the P210 power management panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27001 at the P210 power management panel (WDM 27-81-17):

DM27001AA	DK27001
pin G5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Install the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-81 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.6
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 1. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).

EFFECTIVITY
ARO ALL

27-81 TASK 829

D633W103-ARO

Page 298.7
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (j) If the maintenance message shows on the ground test display, then continue.
- (7) Do this check of the slats extend relay, K27003:
 - (a) Remove the slats extend relay, K27003 from the P210 power management panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27003 at the P210 power management panel (WDM 27-81-17):

DM27001AA	DK27003
pin E2	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Install the slats extend relay, K27003 on the P210 power management panel (WDM 27-81-17).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 1. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the slats extend relay, K27003 on the P210 power management panel (WDM 27-81-17).

EFFECTIVITY
ARO ALL

27-81 TASK 829

D633W103-ARO

Page 298.8
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the slats extend relay, K27003 on the P210 power management panel (WDM 27-81-17).
- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

830. Secondary Slats Retract Slow Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25121.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-81 TASKS 829-830

D633W103-ARO

Page 298.9
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, then continue.
- (2) Use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
- (a) If the slats do not operate in alternate mode, replace the slat electric motor, B27001. These are the tasks:
- Slat Electric Motor Removal, AMM TASK 27-81-34-000-801,
Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
- 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the slats operate in alternate mode, then continue.
- (3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- (a) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the MAT does not show PASSED after the ground test, then continue.

EFFECTIVITY
ARO ALL

27-81 TASK 830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.10
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (5) Remove FSEU 1, M27001 from the E1-6 shelf.
- (6) Do this check of the slats bypass/clutch relay, K27001:
- (a) Remove the slats bypass/clutch relay, K27001 from the P210 power management panel (WDM 27-81-17).
- (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27001 at the P210 power management panel (WDM 27-81-17):

DM27001AA	DK27001
pin G5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Install the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-81 TASK 830

D633W103-ARO

Page 298.11
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO 001-010 (Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 1. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (j) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-81 TASK 830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.12
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (7) Do this check of the slats retract relay, K27005:
- (a) Remove the slats retract relay, K27005 from the P210 power management panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27005 at the P210 power management panel (WDM 27-81-17):

DM27001AA	DK27005
pin G2	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Install the slats retract relay, K27005 on the P210 power management panel (WDM 27-81-17).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 1. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the slats retract relay, K27005 on the P210 power management panel (WDM 27-81-17).
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-81 TASK 830

D633W103-ARO

Page 298.13
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the slat retract relay, K27005 on the P210 power management panel (WDM 27-81-17).
- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

831. Secondary Slats Do Not Operate Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25131.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-81 TASKS 830-831

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, then continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Do this wiring check of the Bypass Solenoid on the slat primary control valve, V27003:
 - (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (b) Disconnect electrical connector DV27003A from the slat primary control valve V27003 in the left wheel well.
- (c) Do a check of the resistance between pins 10 and 16 of connector DV27003A on the slat primary control valve, V27003 in the left wheel well (WDM 27-81-17):

NOTE: This does a check of the Bypass solenoid on the primary control valve, V27003.

- (d) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the Bypass solenoid on the slat primary control valve, V27003.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

EFFECTIVITY
ARO ALL

27-81 TASK 831

D633W103-ARO

Page 298.15
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- 2) Do a check of the resistance between pins 10 and 16 of connector DV27003A on the slat primary control valve, V27003 again (WDM 27-81-17).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.
- 3) Connect electrical connector DV27003A to the slat primary control valve V27003 in the left wheel well.
- 4) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 6) If you do not find a problem with the wiring, then continue.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
 - (a) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the MAT does not show PASSED after the ground test, then continue.
- (6) Do this check of the slats bypass/clutch relay, K27001:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-81 TASK 831

D633W103-ARO

Page 298.16
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove the slats bypass/clutch relay, K27001 from the P210 power management panel (WDM 27-81-17).
- (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27001 at the P210 power management panel (WDM 27-81-17):

DM27001AA	DK27001
pin G5	pin X2

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Install the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-81 TASK 831

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.17
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- f) If you do not find a problem with the wiring, then continue.
- (7) Install a new slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
- (8) Re-install FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (9) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (11) Do this wiring check between the slats retract relay, K27005 and FSEU 1, M27001:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-81 TASK 831

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.18
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO 001-010 (Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove the slats retract relay, K27005 from the P210 power management panel (WDM 27-81-17).
- (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27005 at the P210 power management panel (WDM 27-81-17):

DM27001AA	DK27005
pin G2	pin X2

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Install the slats retract relay, K27005 on the P210 power management panel (WDM 27-81-17).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (f) If the maintenance message shows on the ground test display, then continue.
- (12) Install a new slats retract relay, K27005 on the P210 power management panel (WDM 27-81-17).

EFFECTIVITY
ARO ALL

27-81 TASK 831

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.19
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (13) Re-install FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (14) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (15) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (16) Replace the slat primary control valve, V27003.
- These are the tasks:
- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
- Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- (17) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (18) Replace the slat electric motor, B27001.
- These are the tasks:
- Slat Electric Motor Removal, AMM TASK 27-81-34-000-801,
- Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
- (19) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASK 831

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.20
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (20) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

832. Slats Shutoff Valve Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25141.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the Shutoff Solenoid on the slat primary control valve, V27003 in the left wheel well.
- These are the tasks:
- Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.
- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
- (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.

EFFECTIVITY
ARO ALL

27-81 TASKS 831-832

D633W103-ARO

Page 298.21
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- (b) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Disconnect connector DV27003A from the slat primary control valve, V27003 in the left wheel well.
- (d) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003A at the slat primary control valve, V27003 (WDM 27-81-15):

DM27001AC	DV27003A
pin D5	pin 7

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003A to the slat primary control valve, V27003.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.22
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (7) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

833. Slats Primary System Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25151.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check to see if the slat drive system is locked:
 - (a) Use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
 - (b) If the slats operate with the alternate system, the slat drive system is not locked.
 - (c) If the slats do not operate with the alternate system, the slat drive system is locked.
- (2) If the slat drive system is locked, do these steps:
 - (a) Open this access panel to get access to the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel
 - (b) Look at the torque trip indicators on the slat PDU to see if the drive system is locked in one of the wings.
 - (c) If neither of the torque trip indicators are extended, disconnect the torque tubes from the slat power drive unit (PDU).

EFFECTIVITY
ARO ALL

27-81 TASKS 832-833

D633W103-ARO

Page 298.23
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (d) Use the wrench flats on the torque tube on the outboard side of the PDU to manually extend and retract the left wing slats.
- (e) Use a LE slat drive torque tube coupling adapter, SPL-1694 on the torque tube on the inboard side of the PDU to manually extend and retract the right wing slats.
- (f) If you can extend and retract the slats on each wing, do these steps:
 - 1) Do this task: Slat Electric Motor Removal, AMM TASK 27-81-34-000-801.
 - 2) Use a LE slat drive torque tube coupling adapter, SPL-1694 to try to turn the slat power drive unit (PDU) in the extend and retract directions.
 - 3) If you can turn the PDU, install a new slat electric motor, B27001. To install it, do this task: Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
 - 4) If you cannot turn the PDU, do this task: Slat Hydraulic Motor Removal, AMM TASK 27-81-33-000-801.
 - 5) Use a LE slat drive torque tube coupling adapter, SPL-1694 to try to turn the slat power drive unit (PDU) in the extend and retract directions.
 - 6) If you cannot turn the PDU, replace the slat PDU.

These are the tasks:

Slat Power Drive Unit (PDU) Removal, AMM TASK 27-81-31-000-801,
Slat Power Drive Unit (PDU) Installation, AMM TASK 27-81-31-400-801.
 - 7) Try to turn the output shaft on the slat hydraulic motor.
 - 8) If you can turn the output shaft on the hydraulic motor, replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - 9) If you cannot turn the output shaft on the slat hydraulic motor, install a new slat hydraulic motor. To install it, do this task: Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
 - 10) If it is necessary, re-install the slat hydraulic motor. To install it, do this task: Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
 - 11) If it is necessary, re-install the slat electric motor, B27003. To install it, do this task: Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
- (g) If one of the torque trip indicators is extended or if you cannot extend and retract the slats on one of the wings, replace the gearbox where the slat drive system is locked.
- (h) Connect the torque tubes to the slat PDU.
 - (i) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.
 - (j) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) If the slat drive system is not locked, then continue.
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.

EFFECTIVITY
ARO ALL

27-81 TASK 833

D633W103-ARO

Page 298.24
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.
- These are the tasks:
- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- (b) If the MAT shows PASSED after the ground test, then replace FSEU 1, M27001.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, then replace the slat primary control valve, V27003.
- These are the tasks:
- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (6) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (7) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (8) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (9) Do a wiring check between the slat primary control valve, V27003 and FSEU 1, M27001:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASK 833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.25
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Disconnect connectors DV27003A and DV27003B from the slat primary control valve, V27003 in the left wheel well.
- (d) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003A at the slat primary control valve, V27003 (WDM 27-81-15):

DM27001AC	DV27003A
pin D5	pin 7

- (e) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003B at the slat primary control valve, V27003 (WDM 27-81-15):

DM27001AC	DV27003B
pin D2	pin 2
pin F2	pin 9
pin F2	pin 8

- (f) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connectors DV27003A and DV27003B to the slat primary control valve, V27003.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-81 TASK 833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.26
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (10) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (11) Replace the slat hydraulic motor.
These are the tasks:
Slat Hydraulic Motor Removal, AMM TASK 27-81-33-000-801,
Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
- (12) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

834. Slat Secondary System Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25161.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASKS 833-834

D633W103-ARO

Page 298.27
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the circuit breakers were closed, or if the maintenance message shows on the ground test display, then continue.
- (2) Do this check to see if the slat drive system is locked:
 - (a) Use the primary system to extend and retract the slats. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (b) If the slats do not operate with the primary system, then the slat drive system is locked.
 - (c) If the slats operate with the primary system, then the slat drive system is not locked.
- (3) If the slat drive system is locked, do these steps:
 - (a) Open this access panel to get access to the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel
 - (b) Look at the torque trip indicators on the slat PDU to see if the drive system is locked in one of the wings.
 - (c) If neither of the torque trip indicators are extended, disconnect the torque tubes from the slat power drive unit (PDU).
 - (d) Use the wrench flats on the torque tube on the outboard side of the PDU to manually extend and retract the left wing slats.
 - (e) Use a LE slat drive torque tube coupling adapter, SPL-1694 on the torque tube on the inboard side of the PDU to manually extend and retract the right wing slats.
 - (f) If you can extend and retract the slats on each wing, do these steps:
 - 1) Do this task: Slat Electric Motor Removal, AMM TASK 27-81-34-000-801.
 - 2) Use a LE slat drive torque tube coupling adapter, SPL-1694 to try to turn the slat power drive unit (PDU) in the extend and retract directions.
 - 3) If you can turn the PDU, install a new slat electric motor, B27001. To install it, do this task: Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
 - 4) If you cannot turn the PDU, do this task: Slat Hydraulic Motor Removal, AMM TASK 27-81-33-000-801.
 - 5) Use a LE slat drive torque tube coupling adapter, SPL-1694 to try to turn the slat power drive unit (PDU) in the extend and retract directions.
 - 6) If you cannot turn the PDU, replace the slat PDU.

These are the tasks:

Slat Power Drive Unit (PDU) Removal, AMM TASK 27-81-31-000-801,
Slat Power Drive Unit (PDU) Installation, AMM TASK 27-81-31-400-801.
 - 7) Try to turn the output shaft on the slat hydraulic motor.
 - 8) If you can turn the output shaft on the hydraulic motor, replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

EFFECTIVITY
ARO ALL

27-81 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.28
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 9) If you cannot turn the output shaft on the slat hydraulic motor, install a new slat hydraulic motor. To install it, do this task: Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
 - 10) If it is necessary, re-install the slat hydraulic motor. To install it, do this task: Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
 - 11) If it is necessary, re-install the slat electric motor, B27003. To install it, do this task: Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
- (g) If one of the torque trip indicators is extended or if you cannot extend and retract the slats on one of the wings, replace the gearbox where the slat drive system is locked.
- (h) Connect the torque tubes to the slat PDU.
- (i) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.
- (j) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) If the slat drive system is not locked, use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.

NOTE: This step is intended to find if the slats do not extend, retract or do not operate at all with electric power.

- (5) If the slats do not operate with the alternate system, then replace the slat electric motor, B27001.

These are the tasks:

Slat Electric Motor Removal, AMM TASK 27-81-34-000-801,

Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.

- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (6) If the slats do not extend with the alternate system, then replace the Slats Extend Relay, K27003 on the P210 Panel (WDM 27-81-17).
- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (7) If the slats do not retract with the alternate system, then replace the Slats Retract Relay, K27005 on the P210 Panel (WDM 27-81-17).
- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASK 834

D633W103-ARO

Page 298.29
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message shows on the ground test display, then continue.
- (8) Replace the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
- (9) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (10) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (11) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (12) Do a check of the wiring between the Slats Bypass/Clutch Relay, K27001 and FSEU 1, M27001:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel (WDM 27-81-17).
- (d) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27001 on the P210 panel (WDM 27-81-17):

DM27001AA	DK27001
pin G5	pin X2

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-install FSEU 1 on the E1-6 shelf.
- 3) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.

EFFECTIVITY
ARO ALL

27-81 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.30
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (13) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
- (14) Open these circuit breakers and install safety tags:

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (15) Do a check of the wiring between the Slats Extend Relay, K27003 and FSEU 1, M27001:
- (a) Remove the Slats Extend Relay, K27003 from the P210 panel (WDM 27-81-17).
- (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27003 on the P210 panel (WDM 27-81-17):

DM27001AA	DK27003
pin E2	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Re-install the Slats Extend Relay, K27003 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-81 TASK 834

D633W103-ARO

Page 298.31
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (16) Re-install the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-17).
- (17) Do this check of the wiring between the Slats Retract Relay, K27005 and FSEU 1, M27001:
- (a) Remove the Slats Retract Relay, K27005 from the P210 panel (WDM 27-81-17).
- (b) Do a wiring check between these pins of connector DM27001AA on the E1-6 shelf and connector DK27005 on the P210 panel (WDM 27-81-17):

DM27001AA	DK27005
pin G2	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Re-install the Slats Retract Relay, K27005 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-81 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.32
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO 001-010 (Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (18) Do this check of the wiring between the Slats Retract Relay, K27005 and the slat electric motor, B27001:
- (a) Open this access panel on the lower surface of the left wing:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 511AB | Leading Edge PDU Panel |
- (b) Disconnect the electrical connector DB27001 from the slat electric motor, B27001.
- (c) Do a wiring check between these pins of connector DB27001 on the slat electric motor and connector DK27005 on the P210 panel (WDM 27-81-18):

<u>DB27001</u>		<u>DK27005</u>	
pin 1	.....	pin A2	
pin 2	.....	pin C2	
pin 3	.....	pin B2	

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect electrical connector DB27001 to the slat electric motor.
 - 3) Re-install the Slats Retract Relay, K27005 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-81 TASK 834

D633W103-ARO

Page 298.33
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO 001-010 (Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (19) Re-install the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-17).
- (20) Do this check of the wiring between the Slats Bypass/Clutch Relay, K27001 and the slat electric motor, B27001:
 - (a) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel.
 - (b) Do a wiring check between these pins of connector DB27001 on the slat electric motor and connector DK27001 on the P210 panel (WDM 27-81-17):

DB27001	DK27001
pin 6	pin B2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect electrical connector DB27001 to the slat electric motor.
 - 3) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-81 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.34
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (21) Connect the electrical connector DB27001 to the slat electric motor, B27001.
- (22) Close this access panel on the lower surface of the left wing:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 511AB | Leading Edge PDU Panel |
- (23) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
- (24) Do this check of the wiring between the Slats Extend Relay, K27003 and the Slats Retract Relay, K27005:
- (a) Remove the Slats Extend Relay, K27003 from the P210 panel (WDM 27-81-18).
- (b) Remove the Slats Retract Relay, K27005 from the P210 panel (WDM 27-81-18).
- (c) Do a wiring check between these pins of connector DK27003 on and connector DK27005 on the P210 panel (WDM 27-81-18):

DK27003		DK27005
pin A1	.....	pin A3
pin A3	.....	pin A1
pin B1	.....	pin B3
pin B3	.....	pin C1
pin C1	.....	pin C3
pin C3	.....	pin B1

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the Slats Extend Relay, K27003 on the P210 panel.
 - 3) Re-install the Slats Retract Relay, K27005 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-81 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.35
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO 001-010 (Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (25) Re-install the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-17).
- (26) Re-install the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-17).
- (27) Do this check of the wiring between the Slats Bypass/Clutch Relay, K27001 and the slat primary control valve, V27003:
- (a) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel (WDM 27-81-18).



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (b) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (c) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (d) Disconnect electrical connector DV27003A from the slat primary control valve, V27003 in the left main wheel well.
- (e) Do a wiring check between these pins of connector DK27001 on the P210 panel and connector DV27003A on the slat primary control valve (WDM 27-81-17):

DK27001

DV27003A

pin A2 pin 16

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 3) Re-connect connector DV27003A to the slat primary control valve, V27003.

EFFECTIVITY
ARO ALL

27-81 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.36
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (28) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

835. Slat Asymmetry Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25171.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-81 TASKS 834-835

D633W103-ARO

Page 298.37
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Use the alternate system to retract the slats to the retracted position. To retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
- (3) Look at the SLAT POS L1 and SLAT POS R1 indications on the FLAP/SLAT maintenance page on EICAS.
 - (a) Replace the slat position sensor for the slat position indication which is further from slat number 10.
NOTE: The slat position sensor for FLAP POS L1 is M27103 at slat number 1. The slat position sensor for SLAT POS R1 is M27104 at slat number 14.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Replace the other slat position sensor 1L, M27103 or 1R, M27104.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (6) Remove FSEU 1, M27001 from the E1-6 shelf.
- (7) Do a check of the wiring between FSEU 1 and the slat position sensor 1L, M27103:
 - (a) Disconnect the connector DM27103 from slat position sensor 1L, M27103.
 - (b) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27103 at the slat position sensor 1L, M27103 (WDM 27-88-11):

DM27001AC	DM27103
pin K4	pin 1
pin J4	pin 2
pin G6	pin 3
pin G7	pin 4
pin F6	pin 5
pin F7	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.

EFFECTIVITY
ARO ALL

27-81 TASK 835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.38
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-connect connector DM27103.
- 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you did not find a problem with the wiring, then continue.
- (e) Re-connect connector DM27103 to slat position sensor L1, M27103 on the left wing.
- (8) Do a check of the wiring between FSEU 1 and the slat position sensor 1R, M27104:
 - (a) Disconnect the connector DM27104 from slat position sensor 1R, M27104.
 - (b) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27104 at the slat position sensor 1R, M27104 (WDM 27-88-11):

DM27001AA	DM27104
pin A4	pin 1
pin B4	pin 2
pin D6	pin 3
pin D7	pin 4
pin E6	pin 5
pin E7	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DM27104.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you did not find a problem with the wiring, then continue.
- (e) Re-connect connector DM27104 to slat position sensor R1, M27104 on the right wing.
- (9) Re-install FSEU 1, M27001 on the E1-6 shelf.

EFFECTIVITY
ARO ALL

27-81 TASK 835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.39
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (10) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (11) Look for a broken or disconnected torque tube:

- (a) Find which wing has the broken or disconnected torque tube:

- 1) Look at the 27-FLAP/SLAT maintenance page on the EICAS.
- 2) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- 3) Use the wrench flats on the torque tube outboard of the PDU to manually turn the slat drive system a maximum of four torque tube turns.

NOTE: This will move the slats approximately 1/2 inch.

- 4) If the SLAT POS L 1 indication on the maintenance page does not change when you turn the drive system, then there is a broken or disconnected torque tube in the left wing.
- 5) If the SLAT POS R 1 indication on the maintenance page does not change when you turn the drive system, then there is a broken or disconnected torque tube in the right wing.

- (b) If there is a broken or disconnected torque tube in the right wing, do these steps until you find the torque tube:

- 1) Look at the torque tubes and gearboxes that go through the aft end of the forward cargo compartment.
- 2) Look at the slats on the right wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.

- 3) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
- 4) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
- 5) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
- 6) If it is necessary, remove these access panels for the offset gearboxes on the lower surface of the right wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-81 TASK 835

D633W103-ARO

Page 298.40
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- (c) If there is a broken or disconnected torque tube in the left wing, do these steps until you find the torque tube:

- 1) Look at the slats on the left wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.

- 2) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
- 3) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
- 4) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
- 5) If it is necessary, remove these access panels for the offset gearboxes on the lower surface of the left wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- 6) Connect the inboard torque tube to the slat PDU.

- (12) Replace the applicable torque tube or torque tube support:

- (a) If it is necessary, replace a torque tube in the cargo compartment.

These are the tasks:

Cargo Compartment Slat Torque Tube Removal, AMM TASK 27-81-38-000-803,
Cargo Compartment Slat Torque Tube Installation, AMM TASK 27-81-38-400-803.

- (b) If it is necessary, replace a torque tube on the inboard side of the wing.

These are the tasks:

Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.

- (c) If it is necessary, replace a torque tube on the outboard side of the wing.

EFFECTIVITY
ARO ALL

27-81 TASK 835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.41
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.

- (d) If it is necessary, replace a leading edge pressure seal.

These are the tasks:

Leading Edge Pressure Seal Removal, AMM TASK 27-81-39-000-804,
Leading Edge Pressure Seal Installation, AMM TASK 27-81-39-400-804.

- (e) For a torque tube support on the inboard side of the wing.

These are the tasks:

Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.

- (f) For a torque tube support on the outboard side of the wing.

These are the tasks:

Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.

- (g) For a torque tube support in the cargo compartment.

These are the tasks:

Cargo Compartment Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-803,
Cargo Compartment Torque Tube Support Installation, AMM TASK 27-81-39-400-803.

- (13) Install the applicable access panels:

- (a) Close this access panel below the PDU:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (b) Install these access panels on the right wing:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- (c) Install these access panels on the left wing:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-81 TASK 835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.42
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

————— **END OF TASK** —————

836. Slats Extend Solenoid Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25421.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

EFFECTIVITY
ARO ALL

27-81 TASKS 835-836

D633W103-ARO

Page 298.43
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
- (6) Do this wiring check of the Primary Extend Solenoid on the slat primary control valve, V27003:
- (a) Do a check of the resistance between pins 9 and 19 of connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-15):
- (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the Primary Extend solenoid on the slat primary control valve V27003.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- 2) Do a check of the resistance between pins 9 and 19 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.
- 3) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASK 836

D633W103-ARO

Page 298.44
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (7) Do this wiring check between the slat primary control valve, V27003 and the P310 panel:
- (a) Do a wiring check between these pins on connector D31036P at the P310 standby power management panel and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

D31036P	DV27003B
pin 14	pin 19

- (b) If there is a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (9) Remove FSEU 1, M27001 from the E1-6 shelf.
- (10) Do this wiring check between the slat Primary Extend Solenoid and FSEU 1:
- (a) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

EFFECTIVITY
ARO ALL

27-81 TASK 836

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.45
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AC

pin F2

DV27003B

pin 9

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASK 836

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.46
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— END OF TASK —————

837. Slats Retract Solenoid Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25431.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

EFFECTIVITY
ARO ALL

27-81 TASKS 836-837

D633W103-ARO

Page 298.47
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
- (6) Do this wiring check of the Primary Retract Solenoid on the slat primary control valve, V27003:
- (a) Do a check of the resistance between pins 2 and 17 of connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-15):
- (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the Primary Retract solenoid on the slat primary control valve V27003.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- 2) Do a check of the resistance between pins 2 and 17 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.
- 3) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.48
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (7) Do this wiring check between the slat primary control valve, V27003 and the P310 panel:
- (a) Do a wiring check between these pins on connector D31036P at the P310 standby power management panel and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

D31036P	DV27003B
pin 14	pin 17

- (b) If there is a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (9) Remove FSEU 1, M27001 from the E1-6 shelf.
- (10) Do this wiring check between the slat Primary Retract Solenoid and FSEU 1:
- (a) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

EFFECTIVITY
ARO ALL

27-81 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.49
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AC

DV27003B

pin D2 pin 2

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.50
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

838. Slats Low Speed Solenoid Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25441.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

EFFECTIVITY
ARO ALL

27-81 TASKS 837-838

D633W103-ARO

Page 298.51
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
- (6) Do this wiring check of the Primary Low Speed Solenoid on the slat primary control valve, V27003:
- (a) Do a check of the resistance between pins 8 and 18 of connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-15):
- (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the Primary Low Speed solenoid on the slat primary control valve V27003.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- 2) Do a check of the resistance between pins 8 and 18 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.
- 3) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.52
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - c) If you do not find a problem with the wiring, then continue.
- (7) Do this wiring check between the slat primary control valve, V27003 and the P310 panel:
 - (a) Do a wiring check between these pins on connector D31036P at the P310 standby power management panel and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

D31036P	DV27003B
pin 14	pin 18

- (b) If there is a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (9) Remove FSEU 1, M27001 from the E1-6 shelf.
- (10) Do this wiring check between the slat Primary Low Speed solenoid and FSEU 1:
 - (a) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

EFFECTIVITY
ARO ALL

27-81 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.53
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AC

pin F3

DV27003B

pin 8

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.54
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

839. Slats Shutoff Solenoid Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25451.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

EFFECTIVITY
ARO ALL

27-81 TASKS 838-839

D633W103-ARO

Page 298.55
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27003A from the slat primary control valve V27003 in the left wheel well.
- (6) Do this wiring check of the Primary Shutoff Solenoid on the slat primary control valve, V27003:
- (a) Do a check of the resistance between pins 7 and 8 of connector DV27003A on the slat primary control valve V27003 in the left wheel well (WDM 27-81-15):
- (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- 1) Replace the Primary Shutoff solenoid on the slat primary control valve V27003.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- 2) Do a check of the resistance between pins 7 and 8 of connector DV27003A on the slat primary control valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.
- 3) Connect electrical connector DV27003A to the slat primary control valve V27003 in the left wheel well.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASK 839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.56
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (7) Do this wiring check between the slat primary control valve, V27003 and the P310 panel:
- (a) Do a wiring check between these pins on connector D31036P at the P310 standby power management panel and connector DV27003A at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

D31036P	DV27003A
pin 14	pin 8

- (b) If there is a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Connect electrical connector DV27003A to the slat primary control valve V27003 in the left wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (9) Remove FSEU 1, M27001 from the E1-6 shelf.
- (10) Do this wiring check between the slat Primary Shutoff solenoid and FSEU 1:
- (a) Do a wiring check between these pins on connector DM27001AC at the E1-6 shelf and connector DV27003A at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):

EFFECTIVITY
ARO ALL

27-81 TASK 839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.57
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27001AC

DV27003A

pin D5 pin 7

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27003A.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27003A to the slat primary control valve, V27003.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASK 839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.58
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

840. Slats Extend Relay Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25461.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.
- (2) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (3) Replace the Slats Extend Relay, K27003 on the P210 power management panel (WDM 27-81-18).

EFFECTIVITY
ARO ALL

27-81 TASKS 839-840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.59
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check between the Slats Extend Relay and FSEU 1:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove the Slats Extend Relay, K27003 from the P210 panel.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27003 at the P210 panel (WDM 27-81-17):

DM27001AA	DK27003
pin E2	pin X2

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-81 TASK 840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.60
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install FSEU 1, M27001.
- 3) Re-install the Slats Extend Relay, K27003.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
- (7) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Re-install the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-18).
- (9) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-81 TASK 840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.61
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

841. Slats Retract Relay Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25471.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.
- (2) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (3) Replace the Slats Retract Relay, K27005 on the P210 power management panel (WDM 27-81-18).

EFFECTIVITY
ARO ALL

27-81 TASKS 840-841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.62
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check between the Slats Retract Relay and FSEU 1:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove the Slats Retract Relay, K27005 from the P210 panel.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27005 at the P210 panel (WDM 27-81-17):

DM27001AA	DK27005
pin G2	pin X2

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-81 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.63
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install FSEU 1, M27001.
- 3) Re-install the Slats Retract Relay, K27005.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
- (7) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Re-install the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-18).
- (9) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-81 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.64
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

842. Slats Bypass/Clutch Relay Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25481.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.
- (2) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (3) Replace the Slats Bypass/Clutch Relay, K27001 on the P210 power management panel (WDM 27-81-17).
- (4) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check between the Slats Bypass/Clutch Relay and FSEU 1:

EFFECTIVITY
ARO ALL

27-81 TASKS 841-842

D633W103-ARO

Page 298.65
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel.
(c) Remove FSEU 1, M27001 from the E1-6 shelf.
(d) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DK27001 at the P210 panel (WDM 27-81-17):

DM27001AA	DK27001
pin G5	pin X2

- (e) If you find a problem with the wiring, do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 1, M27001.
- 3) Re-install the Slats Bypass/Clutch Relay, K27001.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (7) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
- (9) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-81 TASK 842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.66
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

843. Autoslat Priority Valve Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25561.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

EFFECTIVITY
ARO ALL

27-81 TASKS 842-843

D633W103-ARO

Page 298.67
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (4) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- (5) Disconnect electrical connector DV27105 from the autoslat priority valve, V27105 in the right wheel well.

- (6) Do this wiring check of the autoslat priority valve, V27105:

- (a) Do a continuity check between pins 1 and 2 of connector DV27105 on the autoslat priority valve V27105 in the right wheel well (WDM 27-81-19):

- (b) If there is no continuity between the pins, do these steps:

- 1) Replace the autoslat priority valve, V27105.

These are the tasks:

Autoslat Priority Valve - Main Landing Gear - Removal, AMM
TASK 27-81-06-000-801,

Autoslat Priority Valve - Main Landing Gear - Installation, AMM
TASK 27-81-06-400-801.

- 2) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- 3) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- (c) If you do not find a problem with the wiring, then continue.

- (7) Do this wiring check between the autoslat priority valve, V27105 and the P210 panel:

- (a) Do a wiring check between these pins on connector D21026P at the P210 power management panel and connector DV27105 at the autoslat priority valve, V27105 in the right wheel well (WDM 27-81-16), (WDM 27-81-19):

D21026P	DV27105
pin 14	pin 1

- (b) If there is a problem with the wiring, do these steps:

- 1) Repair the wiring.

- 2) Connect electrical connector DV27105 to the autoslat priority valve, V27105 in the right wheel well.

- 3) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.68
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:
- Standby Power Management Panel, P310**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|-------------|
| A | 8 | C27513 | SNSR EXC 1 |
| D | 3 | C27601 | FSEU 1 |
- (9) Remove FSEU 1, M27001 from the E1-6 shelf.
- (10) Do this wiring check between the autoslat priority valve and FSEU 1:
- (a) Do a wiring check between these pins on connector DM27001AA at the E1-6 shelf and connector DV27105 at the autoslat priority valve, V27105 in the right wheel well (WDM 27-81-19):

DM27001AA	DV27105
pin E1	pin 2

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DV27105.
 - 4) Remove the safety tags and close these circuit breakers:
- Right Power Management Panel, P210**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|---------------------|
| K | 5 | C27607 | SLATS PRI DR CTRL 2 |
- Standby Power Management Panel, P310**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|-------------|
| A | 8 | C27513 | SNSR EXC 1 |
| D | 3 | C27601 | FSEU 1 |
- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- 6) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 1, M27001. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27105 to the autoslat priority valve, V27105.

EFFECTIVITY
ARO ALL

27-81 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.69
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

844. Slat Hydraulic Pressure Low Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20950.

B. Fault Isolation Procedure

NOTE: This maintenance message can occur if the slats are operated when the center hydraulic system pressure is low or off. This can occur when the center hydraulic system is intentionally off. Therefore, it is possible that there are no problems with the airplane.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- NOTE: Use the Air Driven Pumps (ADPs) to supply hydraulic power.
- (2) Do these steps to find hydraulic system problems:
- (a) Look at the EXTENDED MAINTENANCE, EXISTING FAULTS, 29 Hydraulic System page on the MAT.
- (b) If you find maintenance messages for the center hydraulic system, then do these steps:
- 1) Find each message in the Maintenance Message Index.
 - 2) Do the specified fault isolation task.
 - 3) After you have corrected the maintenance messages for the hydraulic system, then continue.

EFFECTIVITY
ARO ALL

27-81 TASKS 843-844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.70
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) If there are no maintenance messages for the center hydraulic system, then continue.
- (3) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: While the slats operate, look at the hydraulic synoptic page on the MFD to make sure the hydraulic pressure stays higher than 2500 psi.

- (a) If the slats operate in the primary mode, and the hydraulic pressure stays above 2500 psi, then you corrected the fault.
- (b) If the slats do not operate in the primary mode, then continue.
- (4) Replace FSEU 1, M27001, or FSEU 2, M27002 that reported the fault.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

————— **END OF TASK** —————

845. Slat Primary Circuit Breaker Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20971.

B. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: This step will cause the maintenance message to become INACTIVE. Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (2) Move the flap control lever to a position which does not agree with the position of the slats.
- (3) Move the flap control lever to agree with the position of the slats.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (a) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: This step will cause the maintenance message to become INACTIVE. Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (b) Move the flap control lever to a different position.
- (c) Move the flap control lever to agree with the position of the slats.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-81 TASKS 844-845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.71
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: This step will cause the maintenance message to become INACTIVE. Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (b) Move the flap control lever to a different position.

- (c) Move the flap control lever to agree with the position of the slats.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

846. Right Wing Slat Single FSEU Asymmetry Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20911.

B. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 1 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

- (3) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

- (a) If the MAT shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.

- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Replace the slat position sensor, M27104 on the right wing.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

EFFECTIVITY
ARO ALL

27-81 TASKS 845-846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.72
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (2) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do a check of the wiring between FSEU 1 and the slat position sensor, M27104:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Disconnect the connector DM27104 from slat position sensor, M27104.
- (d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27104 at the slat position sensor, M27104 (WDM 27-88-11):

DM27001AA	DM27104
pin A4	pin 1
pin B4	pin 2
pin D6	pin 3
pin D7	pin 4
pin E6	pin 5
pin E7	pin 6

- (e) If you find a problem with the wiring, repair the wiring.
- (f) Re-install FSEU 1, M27001.
- (g) Re-connect connector DS27104.
- (h) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1

EFFECTIVITY
ARO ALL

27-81 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.73
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C27601	FSEU 1

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- 1) If the maintenance message shows NOT ACTIVE (or if the message does not show), then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (6) Look for a broken or disconnected torque tube in the right wing:
- (a) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (b) Look at the torque tubes and gearboxes that go through the fuselage.
- (c) Use the wrench flats on the torque tube outboard of the PDU to manually turn the slat drive system a maximum of four torque tube turns.
NOTE: This will move the slats approximately 1/2 inch.
- (d) Look at the slats on the right wing for a pair of slats that do not fair or a slat that is skewed.
NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.
- (e) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
- (f) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
- (g) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
- (h) Remove these access panels for the offset gearboxes on the lower surface of the right wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-81 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.74
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (7) If you find a broken or disconnected torque tube, replace the applicable torque tube or torque tube support:
- (a) If it is necessary, replace a torque tube in the cargo compartment.
These are the tasks:
Cargo Compartment Slat Torque Tube Removal, AMM TASK 27-81-38-000-803,
Cargo Compartment Slat Torque Tube Installation, AMM TASK 27-81-38-400-803.
 - (b) If it is necessary, replace a torque tube on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.
 - (c) If it is necessary, replace a torque tube on the outboard side of the wing.
These are the tasks:
Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.
 - (d) If it is necessary, replace a leading edge pressure seal.
These are the tasks:
Leading Edge Pressure Seal Removal, AMM TASK 27-81-39-000-804,
Leading Edge Pressure Seal Installation, AMM TASK 27-81-39-400-804.
 - (e) If it is necessary, replace a torque tube support on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.
 - (f) If it is necessary, replace a torque tube support on the outboard side of the wing.
These are the tasks:
Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.
 - (g) If it is necessary, replace a torque tube support in the cargo compartment.
These are the tasks:
Cargo Compartment Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-803,
Cargo Compartment Torque Tube Support Installation, AMM TASK 27-81-39-400-803.

- (8) Install these access panel:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-81 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.75
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
621PB	Outboard Fixed Leading Edge Panel

- (9) Close this access panel below the PDU:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (10) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

847. Slat Electric Motor Circuit Breaker Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-20141, 27-20151.

B. Fault Isolation Procedure

- (1) Close these circuit breakers:

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (2) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

848. Slat Secondary Relay Circuit Breaker Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-20181, 27-20191.

EFFECTIVITY
ARO ALL

27-81 TASKS 846-848

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL

B. Fault Isolation Procedure

- (1) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (2) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

849. Slat Secondary Uncommanded Motion Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-21281, 27-21282.

B. Initial Evaluation

- (1) Make sure the ALTN FLAPS control switch is in the OFF position.



WARNING

MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE SLATS. THE SLATS CAN MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

NOTE: Look for movement of the slats when you arm the alternate control system. As soon as you see the slats move, disarm the alternate control system.

- (a) If the slats move when you arm the alternate control system, then do the Fault Isolation Procedure below.
 - (b) If the slats do not move when you arm the alternate control system, then continue.
- (3) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
 - (4) Use the MAT to select SECONDARY MODE INHIBIT OVERRIDE - FSEU 1 or SECONDARY MODE INHIBIT OVERRIDE - FSEU 2.

NOTE: Look for movement of the slats when you override the secondary mode inhibit.

- (a) If the slats move when you select SECONDARY MODE INHIBIT OVERRIDE, then do the Fault Isolation Procedure below.
- (b) If the slats do not move when you select SECONDARY MODE INHIBIT OVERRIDE, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) If the slats moved in the extend direction while the alternate control system was armed, replace the Slats Extend relay, K27003 on the right power management panel, P210 (WDM 27-81-18).
- (2) If the slats moved in the retract direction while the alternate control system was armed, replace the Slats Retract relay, K27005 on the right power management panel, P210 (WDM 27-81-18).

EFFECTIVITY
ARO ALL

27-81 TASKS 848-849

D633W103-ARO

Page 298.77
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (3) Do a test of the Slats Bypass/Clutch Relay, K27001:
- (a) With the alternate control system disarmed, move the ALTN FLAPS control switch on the control stand to the EXT and the RET positions.
 - (b) If the slats did not move while the switch is in the EXT or RET positions, then you corrected the fault.
 - (c) If the slats move while the switch is in the EXT or RET positions, replace the Slats Bypass/Clutch Relay, K27001 on the right power management panel, P210 (WDM 27-81-17).
- (4) Do a test of the ALTN FLAPS ARM switch, S27052:
- (a) With the alternate control system disarmed, move the ALTN FLAPS control switch to the EXT and the RET positions.
 - (b) If the slats move while the switch is in the EXT or RET positions, replace the ALTN FLAPS ARM switch, S27052 on the control stand, P10 (WDM 27-51-17).
- (5) Make sure the ALTN FLAPS control switch is in the OFF position.
- (6) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.
- NOTE: Look for movement of the slats when you arm the alternate control system. As soon as you see the slats move, disarm the alternate control system.
- (a) If the slats do not move when you arm the alternate control system, then do these steps:
 - 1) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
 - 2) Use the MAT to select SECONDARY MODE INHIBIT OVERRIDE - FSEU 1 or SECONDARY MODE INHIBIT OVERRIDE - FSEU 2.

NOTE: Look for movement of the slats when you override the secondary mode inhibit.

 - a) If the slats do not move when you select SECONDARY MODE INHIBIT OVERRIDE, then you corrected the fault.
 - (b) If the slats move when you arm the alternate control system, or when you select SECONDARY MODE INHIBIT OVERRIDE, then continue.
- (7) Replace the ALTN FLAPS control switch, S27053 on the control stand, P10 (WDM 27-51-17).
- (a) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.
- NOTE: Look for movement of the slats when you arm the alternate control system. As soon as you see the slats move, disarm the alternate control system.
- 1) If the slats do not move when you arm the alternate control system, then do these steps:
 - a) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
 - b) Use the MAT to select SECONDARY MODE INHIBIT OVERRIDE - FSEU 1 or SECONDARY MODE INHIBIT OVERRIDE - FSEU 2.

NOTE: Look for movement of the slats when you override the secondary mode inhibit.

 - c) If the slats do not move when you select SECONDARY MODE INHIBIT OVERRIDE, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-81 TASK 849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.78
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (b) If the slats move when you arm the alternate control system, or when you select SECONDARY MODE INHIBIT OVERRIDE, then continue.
- (8) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (9) If the slats moved in the extend direction when you arm the alternate control system, or when you select SECONDARY MODE INHIBIT OVERRIDE, then do this check of the wiring on the ground side of the Slats Extend Relay, K27003:
- (a) Do a wiring check between these pins on the Slats Extend Relay, K27003 and connector DS27053 on the ALTN FLAPS control switch, S27053 (WDM 27-81-17):

D21039P	DS27053
pin 16	pin M

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 3) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.
NOTE: Look for movement of the slats when you arm the alternate control system.
As soon as you see the slats move, disarm the alternate control system.
- 4) If the slats do not move when you arm the alternate control system, then do these steps:

EFFECTIVITY
ARO ALL

27-81 TASK 849

D633W103-ARO

Page 298.79
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
 - b) Use the MAT to select SECONDARY MODE INHIBIT OVERRIDE - FSEU 1 or SECONDARY MODE INHIBIT OVERRIDE - FSEU 2.
NOTE: Look for movement of the slats when you override the secondary mode inhibit.
 - c) If the slats do not move when you select SECONDARY MODE INHIBIT OVERRIDE, then you corrected the fault.
- (c) If you did not find a problem with the wiring, then continue.
- (d) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (e) Remove FSEU 1, M27001 from the E1-6 shelf.
- (f) Do a wiring check between these pins on the Slats Extend Relay, K27003 and connector DM27001AA at the E1-6 shelf (WDM 27-81-17):

D21039P	DM27001AA
pin 16	pin E2

- (g) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-81 TASK 849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.80
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

NOTE: Look for movement of the slats when you arm the alternate control system.
As soon as you see the slats move, disarm the alternate control system.

- 5) If the slats do not move when you arm the alternate control system, then do these steps:
- Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
 - Use the MAT to select SECONDARY MODE INHIBIT OVERRIDE - FSEU 1 or SECONDARY MODE INHIBIT OVERRIDE - FSEU 2.

NOTE: Look for movement of the slats when you override the secondary mode inhibit.

- If the slats do not move when you select SECONDARY MODE INHIBIT OVERRIDE, then you corrected the fault.
- (h) If you did not find a problem with the wiring, then continue.
- (i) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (j) Remove FSEU 2, M27002 from the E4-1 shelf.
- (k) Do a wiring check between these pins on the Slats Extend Relay, K27003 and connector DM27002AA at the E4-1 shelf (WDM 27-81-17):

D21039P	DM27002AA
pin 16	pin E2

- (l) If you find a problem with the wiring, repair the wiring.
- (m) Re-install FSEU 1 on the E1-6 shelf.
- (n) Re-install FSEU 2 on the E4-1 shelf.
- (o) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-81 TASK 849

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.81
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

ARO 001-010 (Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (p) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

NOTE: Look for movement of the slats when you arm the alternate control system. As soon as you see the slats move, disarm the alternate control system.

- (q) If the slats do not move when you arm the alternate control system, then do these steps:
- 1) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
 - 2) Use the MAT to select SECONDARY MODE INHIBIT OVERRIDE - FSEU 1 or SECONDARY MODE INHIBIT OVERRIDE - FSEU 2.

NOTE: Look for movement of the slats when you override the secondary mode inhibit.

- 3) If the slats do not move when you select SECONDARY MODE INHIBIT OVERRIDE, then you corrected the fault.
- (10) If the slats moved in the retract direction when you arm the alternate control system, do this check of the wiring on the ground side of the Slats Retract Relay, K27005:
- (a) Do a wiring check between these pins on the Slats Retract Relay, K27005 and connector DS27053 on the ALTN FLAPS control switch, S27053 (WDM 27-81-17):

D21039P	DS27053
pin 17	pin D

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

EFFECTIVITY
ARO ALL

27-81 TASK 849

D633W103-ARO

Page 298.82
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 3) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

NOTE: Look for movement of the slats when you arm the alternate control system.
As soon as you see the slats move, disarm the alternate control system.

- 4) If the slats do not move when you arm the alternate control system, then do these steps:
- a) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
 - b) Use the MAT to select SECONDARY MODE INHIBIT OVERRIDE - FSEU 1 or SECONDARY MODE INHIBIT OVERRIDE - FSEU 2.

NOTE: Look for movement of the slats when you override the secondary mode inhibit.

- c) If the slats do not move when you select SECONDARY MODE INHIBIT OVERRIDE, then you corrected the fault.
- (c) If you did not find a problem with the wiring, then continue.
- (d) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (e) Remove FSEU 1, M27001 from the E1-6 shelf.
- (f) Do a wiring check between these pins on the Slats Retract Relay, K27005 and connector DM27001AA at the E1-6 shelf (WDM 27-51-17):

D21039P	DM27001AA
pin 17	pin G2

- (g) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 1 on the E1-6 shelf.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-81 TASK 849

D633W103-ARO

Page 298.83
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

ARO 001-010 (Continued)

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO ALL

A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 4) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

NOTE: Look for movement of the slats when you arm the alternate control system.
As soon as you see the slats move, disarm the alternate control system.

- 5) If the slats do not move when you arm the alternate control system, then do these steps:

- a) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
- b) Use the MAT to select SECONDARY MODE INHIBIT OVERRIDE - FSEU 1 or SECONDARY MODE INHIBIT OVERRIDE - FSEU 2.

NOTE: Look for movement of the slats when you override the secondary mode inhibit.

- c) If the slats do not move when you select SECONDARY MODE INHIBIT OVERRIDE, then you corrected the fault.

- (h) If you did not find a problem with the wiring, then continue.

- (i) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (j) Remove FSEU 2, M27002 from the E4-1 shelf.

- (k) Do a wiring check between these pins on the Slats Retract Relay, K27005 and connector DM27002AA at the E4-1 shelf (WDM 27-81-17):

D21039P	DM27002AA
pin 17	pin G2

- (l) If you find a problem with the wiring, repair the wiring.

- (m) Re-install FSEU 1 on the E1-6 shelf.

- (n) Re-install FSEU 2 on the E4-1 shelf.

- (o) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-81 TASK 849

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (p) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.

NOTE: Look for movement of the slats when you arm the alternate control system. As soon as you see the slats move, disarm the alternate control system.

- (q) If the slats do not move when you arm the alternate control system, then do these steps:

- 1) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
- 2) Use the MAT to select SECONDARY MODE INHIBIT OVERRIDE - FSEU 1 or SECONDARY MODE INHIBIT OVERRIDE - FSEU 2.

NOTE: Look for movement of the slats when you override the secondary mode inhibit.

- 3) If the slats do not move when you select SECONDARY MODE INHIBIT OVERRIDE, then you corrected the fault.

————— **END OF TASK** —————

850. Slats Uncommanded Motion During Test - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25630.

B. Fault Isolation Procedure

- (1) Look at the MAT Existing Faults display to find the SLATS PRIMARY UNCOMMANDED MOTION or SLATS SECONDARY UNCOMMANDED MOTION maintenance message.

NOTE: The maintenance messages numbers are: 27-21021, 27-21022 (Slats Primary Uncommanded Motion), 27-21281 and 27-21282 (Slats Secondary Uncommanded Motion).

- (2) Do the fault isolation procedure for the applicable maintenance message.

————— **END OF TASK** —————

851. Leading Edge Slats Slow Operation Problems - Fault Isolation

A. Initial Evaluation

- (1) If the trailing edge flaps and leading edge slats are not in the fully retracted position, retract them. To retract the flaps and slats, do this task: Retract the Leading Edge Slats, AMM TASK 27-81-00-860-805.

EFFECTIVITY
ARO ALL

27-81 TASKS 849-851

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL

- (2) Record the time necessary to extend the leading edge slats and the trailing edge flaps with the primary system:
 - (a) Use the primary system to extend the slats and the flaps to the fully extended position. To extend them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (b) If the time necessary to fully extend the leading edge slats is more than 45 seconds and the time necessary to fully extend the trailing edge flaps is more than 1 minute, then do the Fault Isolation Procedure below.
 - (c) If the time necessary to fully extend the leading edge slats is less than 45 seconds and the time necessary to fully extend the trailing edge flaps is less than 1 minute, then the system is operating correctly.
 - (d) If the time necessary to fully extend the leading edge slats is more than 45 seconds and the time necessary to fully extend the trailing edge flaps is less than 1 minute, then check the position of the low speed solenoid on the slat primary control valve
 - (e) If the time necessary to fully extend the leading slats is less than 45 seconds and the time necessary to fully extend the trailing edge flaps is more than 1 minute, then do the steps in the following task to check the position of the low speed solenoid on the flap primary control valve: Trailing Edge Flaps Slow Operation Problems - Fault Isolation, 27-51 TASK 875.
 - (f) It is also recommended to do the Slat Primary Control Valve Test, AMM TASK 27-81-05-740-801. If more than one failure is found then fault can possibly be with PCV. If only a single fault then T/S the fault shown on the MAT.

B. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the flap/slat priority valve.

These are the tasks:

Flap/Slat Priority Valve Removal, AMM TASK 27-51-06-000-801,

Flap/Slat Priority Valve Installation, AMM TASK 27-51-06-400-801.

- (a) Use the primary system to extend the slats. To extend them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - 1) If the slats extend in less than 45 seconds, then you corrected the fault.
 - 2) If the slats do not extend in less than 45 second, then continue.
- (4) Do a check of the position of the low speed solenoid on the slat primary control valve:

EFFECTIVITY
ARO ALL

27-81 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.86
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Look at the SLATS MODE indication on the FLAP/SLAT maintenance page on the MFD.
- (b) If the SLATS MODE is LO SPD, then do this wiring check of the low speed solenoid on the slat primary control valve, V27003 in the left main wheel well:

- 1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 2) Disconnect electrical connector DV27003B from the slat primary control valve, V27003 in the left wheel well.
- 3) Do a check of the resistance between pins 8 and 18 of connector DV27003B on the slat primary control valve, V27003 in the left wheel well (WDM 27-81-15):
- 4) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

- a) Replace the Low Speed solenoid on the slat primary control valve, V27003.
These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- b) Do a check of the resistance between pins 8 and 18 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-15).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- c) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

NOTE: The series numbers are the first three numbers taken from the part number of each solenoid.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- d) If the resistance is in the limits, then continue.
- 5) Connect electrical connector DV27003B to the flap primary control valve, V27003 in the left wheel well.
- 6) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-81 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.87
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (c) If the SLATS MODE is not LO SPD, then continue.
- (5) Do a check of the torque trip indicators for the leading edge slat drive system:
- (a) Open this access panel to get access to the slat power drive unit (PDU):
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 511AB | Leading Edge PDU Panel |
- (b) Look at the torque trip indicators on the slat PDU to see if one of them is extended.
- (c) If neither of the torque trip indicators are extended, disconnect the torque tubes from the slat PDU.
- (d) Use the wrench flats on the torque tube on the outboard side of the PDU to manually extend and retract the left wing slats.
- (e) Use a LE slat drive torque tube coupling adapter, SPL-1694 on the torque tube on the inboard side of the PDU to manually extend and retract the right wing slats.
- (f) If one of the torque trip indicators is extended or if you cannot extend and retract the slats on one of the wings, then replace the gearbox where the slat drive system is jammed.
- (g) Connect the torque tubes to the slat PDU.
- (h) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.
- (i) Close this access panel below the slat power drive unit (PDU):
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 511AB | Leading Edge PDU Panel |
- (j) Use the primary system to extend the slats. To extend them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- 1) If the slats extend in less than 45 seconds, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (6) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-81 TASK 851

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.88
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

801. Slat Asymmetry Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20942.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (2) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the two slat position sensors on the left wing, M27103 and M27203.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.
- (4) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (5) Replace the two slat position sensors on the right wing, M27104 and M27204.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

EFFECTIVITY
ARO ALL

27-82 TASK 801

D633W103-ARO

Page 201
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

- (6) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.
- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (7) Do a check of the wiring between FSEU 1 and FSEU 2 and the slat position sensors on the left wing:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Disconnect the connector DM27103 from slat position sensor, M27103.
- (e) Disconnect the connector DM27203 from slat position sensor, M27203.
- (f) Do a wiring check between these pins of connector DM27001AC at the E1-6 shelf and connector DM27103 at the slat position sensor, M27103 (WDM 27-88-11):

DM27001AC

pin K4	.....	pin 1
pin J4	.....	pin 2
pin G6	.....	pin 3
pin G7	.....	pin 4
pin F6	.....	pin 5
pin F7	.....	pin 6

DM27103

- (g) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27203 at the slat position sensor, M27203 (WDM 27-88-12):

DM27002AC

pin K4	.....	pin 1
pin J4	.....	pin 2
pin G6	.....	pin 3
pin G7	.....	pin 4
pin F6	.....	pin 5
pin F7	.....	pin 6

DM27203

- (h) If you find a problem with the wiring, repair the wiring.

EFFECTIVITY
ARO ALL

27-82 TASK 801

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 202
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Re-connect connector DS27103.
- (l) Re-connect connector DS27203.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (8) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (9) Do a check of the wiring between FSEU 1 and FSEU 2 and the slat position sensors on the right wing:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (c) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (d) Disconnect the connector DM27104 from slat position sensor, M27104.
 - (e) Disconnect the connector DM27204 from slat position sensor, M27204.
 - (f) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DM27104 at the slat position sensor, M27104 (WDM 27-88-11):

EFFECTIVITY
ARO ALL

27-82 TASK 801

D633W103-ARO

Page 203
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27001AA	DM27104
pin A4	pin 1
pin B4	pin 2
pin D6	pin 3
pin D7	pin 4
pin E6	pin 5
pin E7	pin 6

- (g) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27203 at the slat position sensor, M27204 (WDM 27-88-12):

DM27002AA	DM27204
pin A4	pin 1
pin B4	pin 2
pin D6	pin 3
pin D7	pin 4
pin E6	pin 5
pin E7	pin 6

- (h) If you find a problem with the wiring, repair the wiring.
- (i) Re-install FSEU 1, M27001.
- (j) Re-install FSEU 2, M27002.
- (k) Re-connect connector DS27104.
- (l) Re-connect connector DS27204.
- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (10) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (11) Look for a broken or disconnected torque tube:
- (a) Find which wing has the broken or disconnected torque tube:
- 1) Look at the 27-FLAP/SLAT maintenance page on the EICAS.

EFFECTIVITY
ARO ALL

27-82 TASK 801

D633W103-ARO

Page 204
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

- 2) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- 3) Use the wrench flats the torque tube outboard of the PDU to turn the slat drive system.
 - 4) If the SLAT POS L 1 and 2 indications on the maintenance page do not change when you turn the drive system, the broken or disconnected torque tube is in the left wing.
 - 5) If the SLAT POS R 1 and 2 indications on the maintenance page do not change when you turn the drive system, the broken or disconnected torque tube is in the right wing.
- (b) If the broken or disconnected torque tube is in the right wing, do these steps until you find the torque tube:
- 1) Look at the torque tubes and gearboxes that go through the fuselage.
 - 2) Disconnect the inboard torque tube from the slat PDU.
 - 3) Use a LE slat drive torque tube coupling adapter, SPL-1694 to manually turn the right wing drive system a maximum of four torque tube turns.
NOTE: This will move the slats approximately 1/2 inch.
 - 4) Look at the slats on the right wing for a pair of slats that do not fair or a slat that is skewed.
NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.
 - 5) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
 - 6) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
 - 7) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
 - 8) Remove these access panels for the offset gearboxes on the lower surface of the right wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- 9) Connect the inboard torque tube to the slat PDU.

EFFECTIVITY
ARO ALL

27-82 TASK 801

D633W103-ARO

Page 205
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) If the broken or disconnected torque tube is in the left wing, do these steps until you find the torque tube:
- 1) Disconnect the outboard torque tube from the slat PDU.
 - 2) Use the wrench flats on the torque tube to manually turn the left wing drive system a maximum of four torque tube turns.
NOTE: This will move the slats approximately 1/2 inch.
 - 3) Look at the slats on the left wing for a pair of slats that do not fair or a slat that is skewed.
NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.
 - 4) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
 - 5) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
 - 6) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
 - 7) Remove these access panels for the offset gearboxes on the lower surface of the left wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- 8) Connect the outboard torque tube to the slat PDU.
- (12) Replace the applicable torque tube or torque tube support:
- (a) If it is necessary, replace a torque tube in the cargo compartment.
These are the tasks:
Cargo Compartment Slat Torque Tube Removal, AMM TASK 27-81-38-000-803,
Cargo Compartment Slat Torque Tube Installation, AMM TASK 27-81-38-400-803.
 - (b) If it is necessary, replace a torque tube on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.
 - (c) If it is necessary, replace a torque tube on the outboard side of the wing.
These are the tasks:
Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.

EFFECTIVITY
ARO ALL

27-82 TASK 801

D633W103-ARO

Page 206
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) If it is necessary, replace a leading edge pressure seal.
These are the tasks:
Leading Edge Pressure Seal Removal, AMM TASK 27-81-39-000-804,
Leading Edge Pressure Seal Installation, AMM TASK 27-81-39-400-804.
- (e) If it is necessary, replace a torque tube support on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.
- (f) If it is necessary, replace a torque tube support on the outboard side of the wing.
These are the tasks:
Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.
- (g) If it is necessary, replace a torque tube support in the cargo compartment.
These are the tasks:
Cargo Compartment Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-803,
Cargo Compartment Torque Tube Support Installation, AMM TASK 27-81-39-400-803.
- (13) Install the applicable access panels:
- (a) Close this access panel below the PDU:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 511AB | Leading Edge PDU Panel |
- (b) Install these applicable access panels on the right wing:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 611EB | Inboard Fixed Leading Edge Panel |
| 611LB | Inboard Fixed Leading Edge Panel |
| 621AAB | Outboard Fixed Leading Edge Panel |
| 621ACB | Outboard Fixed Leading Edge Panel |
| 621BB | Outboard Fixed Leading Edge Panel |
| 621EB | Outboard Fixed Leading Edge Panel |
| 621GB | Outboard Fixed Leading Edge Panel |
| 621JB | Outboard Fixed Leading Edge Panel |
| 621MB | Outboard Fixed Leading Edge Panel |
| 621PB | Outboard Fixed Leading Edge Panel |
- (c) Install these applicable access panels on the left wing:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 511EB | Inboard Fixed Leading Edge Panel |
| 511LB | Inboard Fixed Leading Edge Panel |
| 521AAB | Outboard Fixed Leading Edge Panel |
| 521ACB | Outboard Fixed Leading Edge Panel |
| 521BB | Outboard Fixed Leading Edge Panel |
| 521EB | Outboard Fixed Leading Edge Panel |
| 521GB | Outboard Fixed Leading Edge Panel |
| 521JB | Outboard Fixed Leading Edge Panel |

EFFECTIVITY
ARO ALL

27-82 TASK 801

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 207
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- (14) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.
- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

802. Left Wing Slat Asymmetry Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20852.

B. Initial Evaluation



DO NOT DO A TEST OF THE SLAT SYSTEM WITH HYDRAULIC OR ELECTRIC POWER BEFORE YOU DO A CHECK FOR A BREAK IN THE DRIVE SYSTEM. IF YOU OPERATE THE SLATS WITH POWER, YOU CAN CAUSE DAMAGE TO THE SYSTEM.

- (1) Do not try to operate the slats before you do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Look for a broken or disconnected torque tube in the left wing:
- (a) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (b) Use the wrench flats on the torque tube outboard of the PDU to manually turn the slat drive system a maximum of four torque tube turns.

NOTE: This will move the slats approximately 1/2 inch.

- 1) Use the FLAP/SLAT maintenance page to find which direction to move slats.

NOTE: If the SLAT POS L indications are more than the SLAT POS R indications, move the slats in the retract direction. If the SLAT POS L indications are less than the SLAT POS R indications, move the slats in the extend direction.

- (c) Carefully watch the slats on the left wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.

- (d) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.

EFFECTIVITY
ARO ALL

27-82 TASKS 801-802

D633W103-ARO

Page 208
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (e) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
- (f) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
- (g) Remove these access panels for the offset gearboxes on the lower surface of the left wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- (2) If you find a broken or disconnected torque tube, replace the applicable torque tube or torque tube support:
 - (a) If it is necessary, replace a torque tube on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.
 - (b) If it is necessary, replace a torque tube on the outboard side of the wing.
These are the tasks:
Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.
 - (c) If it is necessary, replace a torque tube support on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.
 - (d) If it is necessary, replace a torque tube support on the outboard side of the wing.
These are the tasks:
Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.

- (3) Install these access panel:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-82 TASK 802

D633W103-ARO

Page 209
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- (4) Close this access panel below the PDU:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

- (6) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (7) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.

- (8) Replace the two slat position sensors on the left wing, M27103 and M27203.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (9) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

803. Right Wing Slat Asymmetry Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20902.

EFFECTIVITY
ARO ALL

27-82 TASKS 802-803

D633W103-ARO

Page 210
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation



DO NOT DO A TEST OF THE SLAT SYSTEM WITH HYDRAULIC OR ELECTRIC POWER BEFORE YOU DO A CHECK FOR A BREAK IN THE DRIVE SYSTEM. IF YOU OPERATE THE SLATS WITH POWER, YOU CAN CAUSE DAMAGE TO THE SYSTEM.

- (1) Do not try to operate the slats before you do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Look for a broken or disconnected torque tube in the right wing:

- (a) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (b) Look at the torque tubes and gearboxes that go through the fuselage.
(c) Use the wrench flats on the torque tube outboard of the PDU to manually turn the slat drive system a maximum of four torque tube turns.

NOTE: This will move the slats approximately 1/2 inch.

- 1) Use the FLAP/SLAT maintenance page to find which direction to move slats.

NOTE: If the SLAT POS R indications are more than the SLAT POS L indications, move the slats in the retract direction. If the SLAT POS R indications are less than the SLAT POS L indications, move the slats in the extend direction.

- (d) Carefully watch the slats on the right wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.

- (e) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
(f) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
(g) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
(h) Remove these access panels for the offset gearboxes on the lower surface of the right wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-82 TASK 803

D633W103-ARO

Page 211
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- (2) If you find a broken or disconnected torque tube, replace the applicable torque tube or torque tube support:
- (a) If it is necessary, replace a torque tube in the cargo compartment.
- These are the tasks:
- Cargo Compartment Slat Torque Tube Removal, AMM TASK 27-81-38-000-803,
Cargo Compartment Slat Torque Tube Installation, AMM TASK 27-81-38-400-803.
- (b) If it is necessary, replace a torque tube on the inboard side of the wing.
- These are the tasks:
- Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.
- (c) If it is necessary, replace a torque tube on the outboard side of the wing.
- These are the tasks:
- Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.
- (d) If it is necessary, replace a leading edge pressure seal.
- These are the tasks:
- Leading Edge Pressure Seal Removal, AMM TASK 27-81-39-000-804,
Leading Edge Pressure Seal Installation, AMM TASK 27-81-39-400-804.
- (e) If it is necessary, replace a torque tube support on the inboard side of the wing.
- These are the tasks:
- Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.
- (f) If it is necessary, replace a torque tube support on the outboard side of the wing.
- These are the tasks:
- Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.
- (g) If it is necessary, replace a torque tube support in the cargo compartment.
- These are the tasks:
- Cargo Compartment Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-803,
Cargo Compartment Torque Tube Support Installation, AMM TASK 27-81-39-400-803.

- (3) Install these access panels:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-82 TASK 803

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 212
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- (4) Close this access panel below the PDU:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

- (6) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (7) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.

- (8) Replace the two slat position sensors on the right wing, M27104 and M27204.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (9) Do these ground tests on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 1, Test of Slats Only and 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-82 TASK 803

D633W103-ARO

Page 213
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

804. Slat Primary Low Speed Solenoid Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20962.

B. Description

- (1) Slats Primary Low Speed Solenoid circuit is open.

C. Possible Causes

- (1) Slats Primary Low Speed Solenoid, V3
- (2) Slat Primary Control Valve, V27003
- (3) Wiring
- (4) Flap/Slat Electronics Unit (FSEU) 2, M27002

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-81-16
- (2) SSM 27-81-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

EFFECTIVITY
ARO ALL

27-82 TASK 804

D633W103-ARO

Page 214
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



WARNING

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

- (3) Do a wiring check of the Low Speed Solenoid as follows:

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the Slat Primary Control Valve, V27003 in the Left Wheel Well (WDM 27-81-16).
- (c) Do a Resistance check between pins 5 and 12 of connector DV27003B on the Slat Primary Control Valve, V27003 in the Left Wheel Well.
- (d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then do these steps:
- 1) Replace the Low Speed Solenoid on the Slat Primary Control Valve, V27003. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802
 - 2) Do a Resistance check between pins 5 and 12 of connector DV27003B on the Slat Primary Control Valve, V27003 again (WDM 27-81-16).

NOTE: This does a check of the internal wiring on the Slat Primary Control Valve, V27003.

- a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then replace the Slat Primary Control Valve, V27003. These are the tasks:
- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801
 - Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801

EFFECTIVITY
ARO ALL

27-82 TASK 804

D633W103-ARO

Page 215
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- <1> Do the Repair Confirmation at the end of this task.
- b) If the Resistance is in the specified limits, then continue.
- (e) If the Resistance is in the specified limits, continue.
- (4) Connect electrical connector DV27003B to the Slat Primary Control Valve, V27003, in the Left Wheel Well.
- (5) Do a check for 28V DC at FSEU 2 as follows:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002, from the E4-1 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
- (c) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- (d) Do a check for 28V DC between pin F3 (+) on connector DM27002AC and structure ground (WDM 27-81-16).
- 1) If you do not find 28V DC at pin F3 on connector DM27002AC, then do these steps:
- a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- b) At the P210 Power Management Panel, disconnect electrical connector D21026P.
- c) In the Left Wheel Well, disconnect electrical connector DV27003B from the Slat Primary Control Valve, V27003.
- d) Do a wiring check from the FSEU-2 connector DM27002AC to the Power Management Panel P210 connector D21026P as follows (WDM 27-81-16):

E4-1 Shelf	L Wheel Well
DM27002AC	DV27003B
pin F3	pin 12

L Wheel Well	P210 Panel
DV27003B	D21026P
pin 5	pin 14

- <1> If you find a problem with the wiring, then do these steps:
- <a> Repair the wiring.
- Re-connect electrical connector DV27003B.

EFFECTIVITY
ARO ALL

27-82 TASK 804

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 216
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- <c> Re-connect electrical connector D21026P.
- <d> Re-install FSEU 2, M27002. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- <e> Do the Repair Confirmation at the end of this task.
- <2> If you do not find a problem with the wiring, continue.
- 2) If you find 28V DC at pin F3 of connector DM27002AC, continue.
- (e) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 2 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

END OF TASK

805. Slat Primary Circuit Breaker Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20972.

B. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: This step will cause the maintenance message to become INACTIVE. Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.
- (2) Move the flap control lever to a position which does not agree with the position of the slats.
- (3) Move the flap control lever to agree with the position of the slats.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-82 TASKS 804-805

D633W103-ARO

Page 217
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- (a) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: This step will cause the maintenance message to become INACTIVE. Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (b) Move the flap control lever to a different position.
- (c) Move the flap control lever to agree with the position of the slats.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

- (2) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: This step will cause the maintenance message to become INACTIVE. Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.

- (b) Move the flap control lever to a different position.
- (c) Move the flap control lever to agree with the position of the slats.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

806. Slat Primary Extend Solenoid Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20992.

B. Description

- (1) Slats Primary Extend Solenoid circuit is open.

C. Possible Causes

- (1) Slats Primary Extend Solenoid, V2
- (2) Slat Primary Control Valve, V27003
- (3) Wiring
- (4) FSEU 2, M27002

EFFECTIVITY
ARO ALL

27-82 TASKS 805-806

D633W103-ARO

Page 218
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-81-16
(2) SSM 27-81-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.



WARNING

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



WARNING

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-82 TASK 806

D633W103-ARO

Page 219
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Extend Solenoid as follows:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the Slat Primary Control Valve, V27003 in the Left Wheel Well (WDM 27-81-16).
 - (c) Do a Resistance check between pins 11 and 15 of connector DV27003B on the Slat Primary Control Valve, V27003 in the Left Wheel Well.
 - (d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then do these steps:
 - 1) Replace the Extend Solenoid on the Slat Primary Control Valve, V27003. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802
 - 2) Do a Resistance check between pins 11 and 15 of connector DV27003B on the Slat Primary Control Valve, V27003 again (WDM 27-81-16).

NOTE: This does a check of the internal wiring on the Slat Primary Control Valve, V27003.

 - a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then replace the Slat Primary Control Valve, V27003. These are the tasks:
 - Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801
 - Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801

<1> Do the Repair Confirmation at the end of this task.
 - b) If the Resistance is in the specified limits, then continue.
 - (e) If the Resistance is the specified limits, then continue.
- (4) Connect electrical connector DV27003B to the Slat Primary Control Valve, V27003, in the Left Wheel Well.
 - (5) Do a check for 28V DC at FSEU 2 as follows:
 - (a) Remove FSEU 2, M27002, from the E4-1 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.

EFFECTIVITY
ARO ALL

27-82 TASK 806

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 220
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (b) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- (c) Do a check for 28V DC between pin F2 (+) on connector DM27002AC and structure ground (WDM 27-81-16).

- 1) If you do not find 28V DC at pin F2 on connector DM27002AC, then do these steps:
- a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- b) At the P210 Power Management Panel, disconnect electrical connector D21026P.
- c) In the Left Wheel Well, disconnect electrical connector DV27003B from the Slat Primary Control Valve, V27003.
- d) Do a wiring check from the FSEU-2 connector DM27002AC to the Power Management Panel P210 connector D21026P as follows (WDM 27-51-16):

E4-1 Shelf	L Wheel Well
DM27002AC	DV27003B
pin F2	pin 11

L Wheel Well	P210 Panel
DV27003B	D21026P
pin 15	pin 14

- <1> If you find a problem with the wiring, then do these steps:
- <a> Repair the wiring.
- Re-connect electrical connector DV27003B.
- <c> Re-connect electrical connector D21026P.
- <d> Re-install FSEU 2, M27002. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- <e> Do the Repair Confirmation at the end of this task.

- <2> If you do not find a problem with the wiring, continue.

- 2) If you find 28V DC at pin F2 of connector DM27002AC, continue.

- (d) Replace FSEU 2, M27002. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

EFFECTIVITY
ARO ALL

27-82 TASK 806

D633W103-ARO

Page 221
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
 - (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

807. Slat Primary Retract Solenoid Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21002.

B. Description

- (1) Slats Primary Retract Solenoid circuit is open.

C. Possible Causes

- (1) Slats Primary Retract Solenoid, V4
- (2) Slat Primary Control Valve, V27003
- (3) Wiring
- (4) FSEU 2, M27002

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-82 TASKS 806-807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 222
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

E. Related Data

- (1) WDM 27-81-16
- (2) SSM 27-81-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to retract the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

G. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.



MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Retract Solenoid as follows:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-82 TASK 807

D633W103-ARO

Page 223
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the Slat Primary Control Valve, V27003 in the Left Wheel Well (WDM 27-81-16).
- (c) Do a Resistance check between pins 4 and 14 of connector DV27003B on the Slat Primary Control Valve, V27003 in the Left Wheel Well.
- (d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then do these steps:
- 1) Replace the Retract Solenoid on the Slat Primary Control Valve, V27003. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802
 - 2) Do a Resistance check between pins 4 and 14 of connector DV27003B on the Slat Primary Control Valve, V27003 again (WDM 27-81-16).
- NOTE:** This does a check of the internal wiring on the Slat Primary Control Valve, V27003.
- a) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 Ohms (for the 883 Series Solenoids), then replace the Slat Primary Control Valve, V27003. These are the tasks:
 - Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801
 - Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801

<1> Do the Repair Confirmation at the end of this task.
 - b) If the Resistance is in the specified limits, then continue.
- (e) If the Resistance is specified limits, then continue.
- (4) Connect electrical connector DV27003B to the Slat Primary Control Valve, V27003, in the Left Wheel Well.
- (5) Do a check for 28V DC at FSEU 2 as follows:
- (a) Remove FSEU 2, M27002, from the E4-1 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
 - (b) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- (c) Do a check for 28V DC between pin D2 (+) on connector DM27002AC and structure ground (WDM 27-81-16).
- 1) If you do not find 28V DC at pin D2 on connector DM27002AC, then do these steps:
 - a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-82 TASK 807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 224
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- b) At the P210 Power Management Panel, disconnect electrical connector D21026P.
- c) In the Left Wheel Well, disconnect electrical connector DV27003B from the Slat Primary Control Valve, V27003.
- d) Do a wiring check from the FSEU-2 connector DM27002AC to the Power Management Panel P210 connector D21026P as follows (WDM 27-51-16):

E4-1 Shelf	L Wheel Well
DM27002AC	DV27003B
pin D2	pin 4
L Wheel Well	P210 Panel
DV27003B	D21026P
pin 14	pin 14

- <1> If you find a problem with the wiring, then do these steps:
 - <a> Repair the wiring.
 - Re-connect electrical connector DV27003B.
 - <c> Re-connect electrical connector D21026P.
 - <d> Re-install FSEU 2, M27002. This is the task: WDM 27-81-16.
 - <e> Do the Repair Confirmation at the end of this task.

<2> If you do not find a problem with the wiring, continue.

2) If you find 28V DC at pin D2 of connector DM27002AC, continue.

- (d) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to retract the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.

EFFECTIVITY
ARO ALL

27-82 TASK 807

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 225
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

808. Slat Primary Shutoff Solenoid Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21012.

B. Description

- (1) Slats Primary Shutoff Solenoid circuit is open.

C. Possible Causes

- (1) Slats Primary Shutoff Solenoid, V1
- (2) Slat Primary Control Valve, V27003
- (3) Wiring
- (4) FSEU 2, M27002

D. Circuit Breakers

- (1) These are the primary circuit breakers related to this fault.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

E. Related Data

- (1) WDM 27-81-16
- (2) SSM 27-81-15

F. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the Primary System to extend or retract the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

EFFECTIVITY
ARO ALL

27-82 TASKS 807-808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 226
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then there was an intermittent problem.

G. Fault Isolation Procedure

NOTE: When you do the AMM Procedure to install a component, it is not necessary to do the test given at the end of the AMM Task. The steps in this FIM Procedure are a sufficient test.



WARNING

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (1) If the Downlock Pins are not installed on the Main and Nose Landing Gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Shutoff Solenoid as follows:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003A from the Slat Primary Control Valve, V27003 in the Left Wheel Well (WDM 27-81-16).
- (c) Do a Resistance check between pins 12 and 14 of connector DV27003A on the Slat Primary Control Valve, V27003 in the Left Wheel Well.
- (d) If the Resistance is not 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 ohms (for the 883 Series Solenoids), then do these steps:
 - 1) Replace the Shutoff Solenoid on the Slat Primary Control Valve, V27003. These are the tasks:
 - Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802
 - Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802
 - 2) Do a Resistance check between pins 12 and 14 of connector DV27003A on the Slat Primary Control Valve, V27003 again (WDM 27-81-16).

NOTE: This does a check of the internal wiring on the Slat Primary Control Valve, V27003.

EFFECTIVITY
ARO ALL

27-82 TASK 808

D633W103-ARO

Page 227
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the Resistance is not in the limit of 56.5 ± 5.0 Ohms (for the 391 Series Solenoids) or 77 ± 7 ohms (for the 883 Series Solenoids), then replace the Slat Primary Control Valve, V27003. These are the tasks:
 - Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801
 - Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801

<1> Do the Repair Confirmation at the end of this task.
- b) If the Resistance in the specified limits, then continue.
- (e) If the Resistance is in the specified limits, then continue.
- (4) Connect electrical connector DV27003A to the Slat Primary Control Valve, V27003, in the Left Wheel Well.
- (5) Do a check for 28V DC at FSEU 2. These are the steps:
 - (a) Remove FSEU 2, M27002, from the E4-1 shelf. This is the task: Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801.
 - (b) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- (c) Do a check for 28V DC between pin D5 (+) on connector DM27002AC and structure ground (WDM 27-81-16).
 - 1) If you do not find 28V DC at pin D5 on connector DM27002AC, then do these steps:
 - a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- b) At the P210 Power Management Panel, disconnect electrical connector D21026P.
- c) In the Left Wheel Well, disconnect electrical connector DV27003A from the Slat Primary Control Valve, V27003.
- d) Do a wiring check from the FSEU-2 connector DM27002AC to the Power Management Panel P210 connector D21026P as follows (WDM 27-51-16):

E4-1 Shelf	L Wheel Well
DM27002AC	DV27003A
pin D5	pin 12

L Wheel Well	P210 Panel
DV27003A	D21026P
pin 14	pin 14

- <1> If you find a problem with the wiring, then do these steps:
- <a> Repair the wiring.
 - Re-connect electrical connector DV27003A.
 - <c> Re-connect electrical connector D21026P.

EFFECTIVITY
ARO ALL

27-82 TASK 808

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 228
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

<d> Re-install FSEU 2, M27002. This is the task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

<e> Do the Repair Confirmation at the end of this task.

<2> If you do not find a problem with the wiring, continue.

2) If you find 28V DC at pin D5 of connector DM27002AC, continue.

(d) Replace FSEU 2, M27002. These are the tasks:

- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
- Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

H. Repair Confirmation

(1) Cycle the ALTN FLAPS ARM Switch on the control stand until FSEU 2 is IN CONTROL

NOTE: Use the FLAP/SLAT Maintenance Page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) For the Center Hydraulic System, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

(3) Use the Primary System to extend or retract the slats to another position. This is the task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

- (a) If the MAT EXISTING FAULTS Display does not show LATCHED for the maintenance message, then you corrected the problem.
- (b) If the MAT shows LATCHED with the maintenance message, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

809. Left Wing Slat Single FSEU Asymmetry Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

(1) This task is for maintenance message: 27-20862.

B. Initial Evaluation

(1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

EFFECTIVITY
ARO ALL

27-82 TASKS 808-809

D633W103-ARO

Page 229
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (3) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Replace the slat position sensor, M27203 on the left wing.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,
Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.
- (2) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (5) Do a check of the wiring between FSEU 2 and the slat position sensor, M27203:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Disconnect the connector DM27203 from slat position sensor, M27203.
- (d) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27203 at the slat position sensor, M27203 (WDM 27-88-12):

EFFECTIVITY
ARO ALL

27-82 TASK 809

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 230
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AC

pin K4	.....	pin 1
pin J4	.....	pin 2
pin G6	.....	pin 3
pin G7	.....	pin 4
pin F6	.....	pin 5
pin F7	.....	pin 6

DM27203

- (e) If you find a problem with the wiring, repair the wiring.
- (f) Re-install FSEU 2, M27002.
- (g) Re-connect connector DS27203.
- (h) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - 1) If the maintenance message shows NOT ACTIVE (or if the message does not show), then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (6) Look for a broken or disconnected torque tube in the left wing:
 - (a) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel
 - (b) Use the wrench flats on the torque tube outboard of the PDU to manually turn the slat drive system a maximum of four torque tube turns.

NOTE: This will move the slats approximately 1/2 inch.
 - (c) Look at the slats on the left wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.
 - (d) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
 - (e) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
 - (f) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.

EFFECTIVITY
ARO ALL

27-82 TASK 809

D633W103-ARO

Page 231
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (g) Remove these access panels for the offset gearboxes on the lower surface of the left wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- (7) If you find a broken or disconnected torque tube, replace the applicable torque tube or torque tube support:

- (a) If it is necessary, replace a torque tube on the inboard side of the wing.

These are the tasks:

Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.

- (b) If it is necessary, replace a torque tube on the outboard side of the wing.

These are the tasks:

Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.

- (c) If it is necessary, replace a torque tube support on the inboard side of the wing.

These are the tasks:

Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.

- (d) If it is necessary, replace a torque tube support on the outboard side of the wing.

These are the tasks:

Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.

- (8) Install these access panels:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-82 TASK 809

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 232
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (9) Close this access panel below the PDU:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (10) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

810. Right Wing Slat Single FSEU Asymmetry Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20912.

B. Initial Evaluation

- (1) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (3) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- (a) If the MAT shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Replace the slat position sensor, M27204 on the right wing.
- These are the tasks:
- Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,
Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.
- (2) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-82 TASKS 809-810

D633W103-ARO

Page 233
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 2, M27002.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do a check of the wiring between FSEU 2 and the slat position sensor, M27204:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Disconnect the connector DM27204 from slat position sensor, M27204.
- (d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27204 at the slat position sensor, M27204 (WDM 27-88-12):

<u>DM27002AA</u>		<u>DM27204</u>
pin A4	.....	pin 1
pin B4	.....	pin 2
pin D6	.....	pin 3
pin D7	.....	pin 4
pin E6	.....	pin 5
pin E7	.....	pin 6

- (e) If you find a problem with the wiring, repair the wiring.
- (f) Re-install FSEU 2, M27002.
- (g) Re-connect connector DS27204.
- (h) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

EFFECTIVITY
ARO ALL

27-82 TASK 810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 234
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message shows NOT ACTIVE (or if the message does not show), then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (6) Look for a broken or disconnected torque tube in the right wing:
- (a) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel
 - (b) Look at the torque tubes and gearboxes that go through the fuselage.
 - (c) Use the wrench flats on the torque tube outboard of the PDU to manually turn the slat drive system a maximum of four torque tube turns.

NOTE: This will move the slats approximately 1/2 inch.
 - (d) Look at the slats on the right wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.
 - (e) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
 - (f) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
 - (g) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
 - (h) Remove these access panels for the offset gearboxes on the lower surface of the right wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel
- (7) If you find a broken or disconnected torque tube, replace the applicable torque tube or torque tube support:
- (a) If it is necessary, replace a torque tube in the cargo compartment.

These are the tasks:

Cargo Compartment Slat Torque Tube Removal, AMM TASK 27-81-38-000-803,
Cargo Compartment Slat Torque Tube Installation, AMM TASK 27-81-38-400-803.
 - (b) If it is necessary, replace a torque tube on the inboard side of the wing.

These are the tasks:

EFFECTIVITY
ARO ALL

27-82 TASK 810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 235
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.

- (c) If it is necessary, replace a torque tube on the outboard side of the wing.

These are the tasks:

Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.

- (d) If it is necessary, replace a leading edge pressure seal.

These are the tasks:

Leading Edge Pressure Seal Removal, AMM TASK 27-81-39-000-804,
Leading Edge Pressure Seal Installation, AMM TASK 27-81-39-400-804.

- (e) If it is necessary, replace a torque tube support on the inboard side of the wing.

These are the tasks:

Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.

- (f) If it is necessary, replace a torque tube support on the outboard side of the wing.

These are the tasks:

Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.

- (g) If it is necessary, replace a torque tube support in the cargo compartment.

These are the tasks:

Cargo Compartment Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-803,
Cargo Compartment Torque Tube Support Installation, AMM TASK 27-81-39-400-803.

- (8) Install these access panel:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- (9) Close this access panel below the PDU:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (10) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

EFFECTIVITY
ARO ALL

27-82 TASK 810

D633W103-ARO

Page 236
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (11) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2 Test of Slats Only.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

811. Slat Uncommanded Motion Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21022.

B. Initial Evaluation

- (1) Make sure the position of the flap control lever agrees with the position of the flaps.
- (2) Make sure the ALTN FLAPS control switch is in the OFF position.
- (3) Push the ALTN FLAPS ARM switch on the control stand to arm the alternate control system.



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: Use a single AC Motor Pump (ACMP) to supply power to the center system. This will cause the slats to move more slowly if there is not an intermittent fault. If you use two ACMPs or and Air Driven Pump (ADP) the slats will move further before the FSEUs stop them.



MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE SLATS. THE SLATS CAN MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Push the ALTN FLAPS ARM switch on the control stand to disarm the alternate control system.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure - Uncommanded Motion below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-82 TASKS 810-811

D633W103-ARO

Page 237
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
NOTE: Use an Air Driven Pump (ADP) to move the slats. This will allow the slats to move at their usual rate.
- (7) Cycle the ALTN FLAPS ARM switch on the control stand until FSEU 2 is IN CONTROL.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to find which FSEU is IN CONTROL.
- (8) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the MAT shows LATCHED with the maintenance message, then do the Fault Isolation Procedure - Stops Out of Detent below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.
- (9) Do this ground test on the MAT for FSEU 2: Slat Primary Control Valve Test, AMM TASK 27-81-05-740-801.

C. Fault Isolation Procedure - Uncommanded Motion

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

EFFECTIVITY
ARO ALL

27-82 TASK 811

D633W103-ARO

Page 238
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (5) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (6) Use the primary system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
 - (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (7) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

D. Fault Isolation Procedure - Stops Out of Detent

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Low Speed solenoid on the slat primary control valve, V27003 in the left wheel well:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the slat primary control valve, V27003.

EFFECTIVITY
ARO ALL

27-82 TASK 811

D633W103-ARO

Page 239
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (c) Do a check of the resistance between pins 5 and 12 of connector DV27003B on the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):
- (d) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
- 1) Replace the Low Speed solenoid on the slat primary control valve, V27003.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.
 - 2) Do a check of the resistance between pins 5 and 12 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-16).
NOTE: This does a check of the internal wiring on the primary control valve, V27003.
 - a) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- (e) Connect electrical connector DV27003B to the slat primary control valve V27003.
- (f) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (g) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (h) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
- (i) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (j) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (4) Do this check of the adjustment of the slat position sensors:
- (a) Make sure the leading edge slats are in the retracted position.

EFFECTIVITY
ARO ALL

27-82 TASK 811

D633W103-ARO

Page 240
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Look at the SLAT POS L1, R1, L2 and R2 indications on the FLAP/SLAT maintenance page on EICAS.
- (c) If one of the slat position indications is not less than 11.65, then replace the applicable slat position sensor.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

NOTE: The slat position sensor for SLAT POS L1 and L2 are in the left wing. The slat position sensor for SLAT POS R1 and R2 are in the right wing.



WARNING

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (d) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (e) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (f) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

812. Slat Secondary System Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21032.

B. Initial Evaluation

- (1) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-82 TASKS 811-812

D633W103-ARO

Page 241
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (a) If the circuit breakers were not closed, use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breakers were closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do this check to see if the slat drive system is locked:
- (a) Use the primary system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- NOTE:** Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
- (b) If the slats do not operate with the primary system, then use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802
- (c) If the slats do not operate with the primary or the alternate system, then the slat drive system is locked.
- (d) If the slats operate with the primary or the alternate system, then the slat drive system is not locked.
- (3) If the slat drive system is locked, then do these steps:
- (a) Open this access panel to get access to the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

EFFECTIVITY
ARO ALL

27-82 TASK 812

D633W103-ARO

Page 242
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Look at the torque trip indicators on the slat PDU to see if the drive system is locked in one of the wings.
- (c) If neither of the torque trip indicators are extended, disconnect the torque tubes from the slat PDU.
- (d) Use the wrench flats on the torque tube on the outboard side of the PDU to manually extend and retract the left wing slats.
- (e) Use a LE slat drive torque tube coupling adapter, SPL-1694 on the torque tube on the inboard side of the PDU to manually extend and retract the right wing slats.
- (f) If you can extend and retract the slats on each wing, do these steps:
 - 1) Do this task: Slat Electric Motor Removal, AMM TASK 27-81-34-000-801.
 - 2) Use a LE slat drive torque tube coupling adapter, SPL-1694 to try to turn the slat power drive unit (PDU) in the extend and retract directions.
 - 3) If you can turn the PDU, then install a new slat electric motor, B27001. To install it, do this task: Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
 - 4) If you cannot turn the PDU, do this task: Slat Hydraulic Motor Removal, AMM TASK 27-81-33-000-801.
 - 5) Use a LE slat drive torque tube coupling adapter, SPL-1694 to try to turn the slat power drive unit (PDU) in the extend and retract directions.
 - 6) If you cannot turn the PDU, then replace the slat PDU.
These are the tasks:
Slat Power Drive Unit (PDU) Removal, AMM TASK 27-81-31-000-801,
Slat Power Drive Unit (PDU) Installation, AMM TASK 27-81-31-400-801.
 - 7) Try to turn the output shaft on the slat hydraulic motor.
 - 8) If you can turn the output shaft on the hydraulic motor, then replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - 9) If you cannot turn the output shaft on the slat hydraulic motor, then install a new slat hydraulic motor. To install it, do this task: Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
 - 10) If it is necessary, re-install the slat hydraulic motor. To install it, do this task: Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
 - 11) If it is necessary, re-install the slat electric motor, B27003. To install it, do this task: Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
- (g) If one of the torque trip indicators is extended or if you cannot extend and retract the slats on one of the wings, replace the gearbox where the slat drive system is locked.
- (h) Connect the torque tubes to the slat PDU.
- (i) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.

EFFECTIVITY
ARO ALL

27-82 TASK 812

D633W103-ARO

Page 243
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (j) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 2) If the maintenance message shows on the MAT, then continue.
- (4) If the slats do not operate with the alternate system, then do a check of the electrical power to the slat electric motor, B27001:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (b) Open this access panel to get access to the slat power drive unit (PDU):
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 511AB | Leading Edge PDU Panel |
- (c) Disconnect the electrical connector, DB27001 from the slat electric motor, B27001.
- (d) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (e) Push the ALT FLAPS ARM switch on the control stand to arm the alternate control system.
- (f) Do a check for 28 VDC between pin 6 of connector DB27001 and structure ground (WDM 27-81-17).

EFFECTIVITY
ARO ALL

27-82 TASK 812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 244
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (g) Turn the ALT FLAPS control switch to the EXT position.
- (h) With the ALT FLAPS control switch in the EXT position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27001 (WDM 27-81-18).
- (i) Turn the ALT FLAPS control switch to the RET position.
- (j) With the ALT FLAPS control switch in the RET position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27001 (WDM 27-81-18).
- (k) If there is 115 VAC at pins 1, 2 and 3 and 28 VDC at pin 6 of connector DB27001, then replace the slat electric motor, B27001.

These are the tasks:

Slat Electric Motor Removal, AMM TASK 27-81-34-000-801,

Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.

- 1) Turn the ALT FLAPS control switch to the OFF position.
 - 2) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.
 - 3) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
 - 4) Use the alternate system to extend and retract the slat. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
 - 5) If the slat operate with the alternate system, then you corrected the fault.
- (l) If there is not 28 VDC at pin 6 of connector DB27001, then do this wiring check between the slat electric motor, B27001 and the Slats Bypass/Clutch Relay, K27001 on the P210 panel:
- 1) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel (WDM 27-81-17).
 - 2) Do a wiring check between these pins of connector DB27001 on the slat electric motor, B27001 and connector DK27001 on the P210 panel (WDM 27-81-17):
- | | |
|-----------------|----------------|
| DB27001 | DK27001 |
| pin 6 | pin B2 |
- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 4) If you do not find a problem with the wiring, then install a new Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 5) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
 - 6) Use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
 - a) If the flaps operate with the alternate system, then you corrected the fault
- (m) If there is not 115 VAC at pins 1, 2 and 3 then do this wiring check between the slat electric motor, B27001 and the Slats Retract Relay, K27005 on the P210 panel:
- 1) Remove the Slats Retract Relay, K27005 from the P210 panel (WDM 27-81-18).
 - 2) Do a wiring check between these pins of connector DB27001 on the slat electric motor, B27001 and connector DK27005 on the P210 panel (WDM 27-81-18):

EFFECTIVITY
ARO ALL

27-82 TASK 812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 245
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DB27001

pin 1	.....	pin A2
pin 2	.....	pin C2
pin 3	.....	pin B2

DK27005

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Slats Retract Relay, K27005 on the P210 panel.
- 4) If you do not find a problem with the wiring, then do this wiring check between the Slats Retract Relay, K27005 and the Slats Extend Relay K27003 on the P210 panel:
 - a) Remove the Slats Extend Relay, K27003 from the P210 panel (WDM 27-81-18).
 - b) Do a wiring check between these pins of connector DK27003 and connector DK27005 on the P210 panel (WDM 27-81-18):

DK27003

pin A1	.....	pin A3
pin A3	.....	pin A1
pin B1	.....	pin B3
pin B3	.....	pin C1
pin C1	.....	pin C3
pin C3	.....	pin B1

DK27005

- c) If you find a problem with the wiring, then repair the wiring.
 - d) Reinstall the Slats Retract Relay, K27005 on the P210 panel.
 - e) Reinstall the Slats Extend Relay, K27003 on the P210 panel.
- 5) If you do not find a problem with the wiring, then install a new Slats Extend Relay, K27003 and a new Slats Retract Relay, K27005 on the P210 panel.
- 6) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
- 7) Use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
 - a) If the slats operate with the alternate system, then you corrected the fault
- (n) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
- (o) Turn the ALT FLAPS control switch to the OFF position.
- (p) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.
- (q) Close this access panel on the lower surface of the left wing:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

EFFECTIVITY
ARO ALL

27-82 TASK 812

D633W103-ARO

Page 246
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (5) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (6) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (7) Remove FSEU 2, M27002 from the E4-1 shelf.
- (8) Do this check of the wiring between the Slats Bypass/Clutch Relay, K27001 and FSEU 2, M27002:
- (a) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel (WDM 27-81-17).
- (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27001 on the P210 panel (WDM 27-81-17):

DM27002AA	DK27001
pin G5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 shelf.
 - 3) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-82 TASK 812

D633W103-ARO

Page 247
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 5) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
- (9) Open these circuit breakers and install safety tags:

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (10) Do this check of the wiring between the Slats Extend Relay, K27003 and FSEU 2, M27002:
- (a) Remove the Slats Extend Relay, K27003 from the P210 panel (WDM 27-81-17).
- (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27003 on the P210 panel (WDM 27-81-17):

DM27002AA	DK27003
pin E2	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 shelf.
 - 3) Re-install the Slats Extend Relay, K27003 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-82 TASK 812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 248
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO ALL

- 5) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-17).
- (11) Do this check of the wiring between the Slats Retract Relay, K27005 and FSEU 2, M27002:
- (a) Remove the Slats Retract Relay, K27005 from the P210 panel (WDM 27-81-17).
- (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27005 on the P210 panel (WDM 27-81-17):

DM27002AA	DK27005
pin G2	pin X2

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 shelf.
 - 3) Re-install the Slats Retract Relay, K27005 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

EFFECTIVITY
ARO ALL

27-82 TASK 812



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-17).
- (12) Do a wiring check between the Slat Extend Relay, K27003, the Slat Retract Relay, K27005 and the Slat Limit Switch. Repair any damaged wiring found and replace the Slat Limit Switch, S27005, as necessary WDM 27-81-17.

These are the tasks:

Slat Limit Switch Removal, AMM TASK 27-81-32-000-801

Slat Limit Switch Installation, AMM TASK 27-81-32-400-801

- (13) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- b) If the maintenance message shows on the ground test display, then continue.

- (14) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (15) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (16) Use the secondary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-82 TASK 812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 250
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

813. Slat Secondary System Auto Test Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21042.

B. Initial Evaluation

- (1) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (a) If the circuit breakers were not closed, use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breakers were closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Do a check of the electrical power to the slat electric motor, B27001:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-82 TASK 813

D633W103-ARO

Page 251
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (b) Open this access panel to get access to the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (c) Disconnect the electrical connector, DB27001 from the slat electric motor, B27001.
(d) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (e) Push the ALT FLAPS ARM switch on the control stand to arm the alternate control system.
(f) Do a check for 28 VDC between pin 6 of connector DB27001 and structure ground (WDM 27-81-17).
(g) Turn the ALT FLAPS control switch to the EXT position.
(h) With the ALT FLAPS control switch in the EXT position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27001 (WDM 27-81-18).
(i) Turn the ALT FLAPS control switch to the RET position.
(j) With the ALT FLAPS control switch in the RET position do a check for 115 VAC at pins 1, 2 and 3 of connector DB27001 (WDM 27-81-18).
(k) If there is 115 VAC at pins 1, 2 and 3 and 28 VDC at pin 6 of connector DB27001, then replace the slat electric motor, B27001.

These are the tasks:

Slat Electric Motor Removal, AMM TASK 27-81-34-000-801,

Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.

- 1) Turn the ALT FLAPS control switch to the OFF position.
- 2) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.

EFFECTIVITY
ARO ALL

27-82 TASK 813

D633W103-ARO

Page 252
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
- 4) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (l) If there is not 28 VDC at pin 6 of connector DB27001, then do this wiring check between the slat electric motor, B27001 and the Slats Bypass/Clutch Relay, K27001 on the P210 panel:

- 1) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel (WDM 27-81-17).
- 2) Do a wiring check between these pins of connector DB27001 on the slat electric motor, B27001 and connector DK27001 on the P210 panel (WDM 27-81-17):

DB27001	DK27001
pin 6	pin B2

- 3) If you find a problem with the wiring, then repair the wiring.
 - a) Reinstall the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
- 4) If you do not find a problem with the wiring, then install a new Slats Bypass/Clutch Relay, K27001 on the P210 panel.
- 5) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
- 6) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (m) If there is not 115 VAC at pins 1, 2 and 3 then do this wiring check between the slat electric motor, B27001 and the Slats Retract Relay, K27005 on the P210 panel:
- 1) Remove the Slats Retract Relay, K27005 from the P210 panel (WDM 27-81-18).
 - 2) Do a wiring check between these pins of connector DB27001 on the slat electric motor, B27001 and connector DK27005 on the P210 panel (WDM 27-81-18):

DB27001	DK27005
pin 1	pin A2
pin 2	pin C2
pin 3	pin B2

- 3) If you find a problem with the wiring, then repair the wiring.

EFFECTIVITY
ARO ALL

27-82 TASK 813

D633W103-ARO

Page 253
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- a) Reinstall the Slats Retract Relay, K27005 on the P210 panel.
- 4) If you do not find a problem with the wiring, then do this wiring check between the Slats Retract Relay, K27005 and the Slats Extend Relay K27003 on the P210 panel:
 - a) Remove the Slats Extend Relay, K27003 from the P210 panel (WDM 27-81-18).
 - b) Do a wiring check between these pins of connector DK27003 and connector DK27005 on the P210 panel (WDM 27-81-18):

DK27003		DK27005	
pin A1	.....	pin A3	
pin A3	.....	pin A1	
pin B1	.....	pin B3	
pin B3	.....	pin C1	
pin C1	.....	pin C3	
pin C3	.....	pin B1	

- c) If you find a problem with the wiring, then repair the wiring.
- d) Reinstall the Slats Retract Relay, K27005 on the P210 panel.
- e) Reinstall the Slats Extend Relay, K27003 on the P210 panel.
- 5) If you do not find a problem with the wiring, then install a new Slats Extend Relay, K27003 and a new Slats Retract Relay, K27005 on the P210 panel.
- 6) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
- 7) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (n) Connect the electrical connector, DB27001 to the slat electric motor, B27001.
- (o) Turn the ALT FLAPS control switch to the OFF position.
- (p) Push the ALT FLAPS ARM switch on the control stand to disarm the alternate control system.
- (q) Close this access panel on the lower surface of the left wing:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (3) Do this check of the wiring between the Slats Bypass/Clutch Relay, K27001 and FSEU 2, M27002:
 - (a) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27001 on the P210 panel (WDM 27-81-17):

EFFECTIVITY
ARO ALL

27-82 TASK 813

D633W103-ARO

Page 254
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AA

pin G5 pin X2

DK27001

- (c) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 2 on the E4-1 shelf.
- 3) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

- 5) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
- (4) Open these circuit breakers and install safety tags:

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (5) Do this check of the wiring between the Slats Extend Relay, K27003 and FSEU 2, M27002:
- (a) Remove the Slats Extend Relay, K27003 from the P210 panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27003 on the P210 panel (WDM 27-81-17):

DM27002AA

pin E2 pin X2

DK27003

- (c) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 2 on the E4-1 shelf.

EFFECTIVITY
ARO ALL

27-82 TASK 813

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 255
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Re-install the Slats Extend Relay, K27003 on the P210 panel.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-17).
- (6) Do this check of the wiring between the Slats Retract Relay, K27005 and FSEU 2, M27002:
 - (a) Remove the Slats Retract Relay, K27005 from the P210 panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27005 on the P210 panel (WDM 27-81-17):

DM27002AA	DK27005
pin G2	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 shelf.
 - 3) Re-install the Slats Retract Relay, K27005 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-82 TASK 813

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 256
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the MAT, then continue.
- (e) Re-install the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-17).
- (7) Replace FSEU 2, M27002.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (9) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

EFFECTIVITY
ARO ALL

27-82 TASK 813

D633W103-ARO

Page 257
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

814. Slat Single FSEU Asymmetry Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21052.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Look for a broken or disconnected torque tube:
- (a) Find which wing has the broken or disconnected torque tube:
- 1) Look at the 27-FLAP/SLAT maintenance page on the EICAS.
 - 2) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 511AB | Leading Edge PDU Panel |
- 3) Use the wrench flats on the outboard torque tube to turn the slat drive system.
 - 4) If the SLAT POS L 2 indication on the maintenance page does not change when you turn the drive system, then there is a broken or disconnected torque tube in the left wing.
 - 5) If the SLAT POS R 2 indication on the maintenance page does not change when you turn the drive system, then there is a broken or disconnected torque tube in the right wing.
- (b) If there is a broken or disconnected torque tube in the right wing, do these steps until you find the torque tube:
- 1) Look at the torque tubes and gearboxes that go through the fuselage.
 - 2) Disconnect the inboard torque tube from the slat PDU.
 - 3) Use a LE slat drive torque tube coupling adapter, SPL-1694 on the torque tube to manually turn the right wing drive system a maximum of four torque tube turns.

NOTE: This will move the slats approximately 1/2 inch.

EFFECTIVITY
ARO ALL

27-82 TASKS 813-814

D633W103-ARO

Page 258
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Look at the slats on the right wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.

- 5) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
- 6) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
- 7) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
- 8) Remove these access panels for the offset gearboxes on the lower surface of the right wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- 9) Connect the inboard torque tube to the slat PDU.

- (c) If there is a broken or disconnected torque tube in the left wing, do these steps until you find the torque tube:

- 1) Disconnect the outboard torque tube from the slat PDU.
- 2) Use the wrench flats to manually turn the left wing drive system a maximum of four torque tube turns.

NOTE: This will move the slats approximately 1/2 inch.

- 3) Look at the slats on the left wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.

- 4) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
- 5) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
- 6) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
- 7) Remove these access panels for the offset gearboxes on the lower surface of the left wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-82 TASK 814

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 259
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- 8) Connect the inboard torque tube to the slat PDU.
- (2) Replace the applicable torque tube or torque tube support:
- (a) If it is necessary, replace a torque tube in the cargo compartment.
- These are the tasks:
- Cargo Compartment Slat Torque Tube Removal, AMM TASK 27-81-38-000-803,
Cargo Compartment Slat Torque Tube Installation, AMM TASK 27-81-38-400-803.
- (b) If it is necessary, replace a torque tube on the inboard side of the wing.
- These are the tasks:
- Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.
- (c) If it is necessary, replace a torque tube on the outboard side of the wing.
- These are the tasks:
- Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.
- (d) If it is necessary, replace a leading edge pressure seal.
- These are the tasks:
- Leading Edge Pressure Seal Removal, AMM TASK 27-81-39-000-804,
Leading Edge Pressure Seal Installation, AMM TASK 27-81-39-400-804.
- (e) If it is necessary, replace a torque tube support on the inboard side of the wing.
- These are the tasks:
- Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.
- (f) If it is necessary, replace a torque tube support on the outboard side of the wing.
- These are the tasks:
- Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.
- (g) If it is necessary, replace a torque tube support in the cargo compartment.
- These are the tasks:
- Cargo Compartment Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-803,

EFFECTIVITY
ARO ALL

27-82 TASK 814

D633W103-ARO

Page 260
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Cargo Compartment Torque Tube Support Installation, AMM TASK 27-81-39-400-803.

(3) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.

(4) Install the applicable access panels:

(a) Close this panel below the PDU:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

(b) Close these panels on the right wing:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

(c) Close these panels on the left wing:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

(5) Replace the slat position sensor 2L, M27203 on the left wing.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

(6) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.

(a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

(b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.

(7) Replace the slat position sensor 2R, M27204 on the right wing.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

EFFECTIVITY
ARO ALL

27-82 TASK 814

D633W103-ARO

Page 261
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (8) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.
- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (9) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (10) Remove FSEU 2, M27002 from the E4-1 shelf.
- (11) Do a check of the wiring between FSEU 2, M27002 and the slat position sensor 2L, M27203:
- (a) Disconnect the connector DM27203 from slat position sensor 2L, M27203.
- (b) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27203 at the slat position sensor 2L, M27203 (WDM 27-88-12):

DM27002AC	DM27203
pin K4	pin 1
pin J4	pin 2
pin G6	pin 3
pin G7	pin 4
pin F6	pin 5
pin F7	pin 6

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27203.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (d) If you did not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (12) Connect the connector DM27203 to slat position sensor 2L, M27203.

EFFECTIVITY
ARO ALL

27-82 TASK 814

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 262
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (13) Do a check of the wiring between FSEU 2, M27002 and the slat position sensor 2R, M27204:
- (a) Disconnect the connector DM27204 from slat position sensor 2R, M27204.
 - (b) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27204 at the slat position sensor 2R, M27204 (WDM 27-88-12):

DM27002AA		DM27204	
pin A4	.....	pin 1	
pin B4	.....	pin 2	
pin D6	.....	pin 3	
pin D7	.....	pin 4	
pin E6	.....	pin 5	
pin E7	.....	pin 6	

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27204.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (d) If you did not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (14) Connect the connector DM27204 to slat position sensor 2R, M27204.
- (15) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (16) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (17) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
 - (a) If the maintenance message does not show on the MAT, then you corrected the fault.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-82 TASK 814

D633W103-ARO

Page 263
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

815. Left and Right Slat Position Sensor Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21162.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Use the alternate system to retract the slats to the retracted position. To retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
- (3) Look at the SLAT POS L2 and SLAT POS R2 indications on the FLAP/SLAT maintenance page on EICAS.
 - (a) Replace the slat position sensor for the slat position indication which is further from 10.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

NOTE: The slat position sensor for SLAT POS L2 is M27203 on the left wing. The slat position sensor for SLAT POS R2 is M27204 on the right wing.

- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Replace the other slat position sensor 2L, M27203 or 2R, M27204.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

EFFECTIVITY
ARO ALL

27-82 TASK 815

D633W103-ARO

Page 264
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

(Continued)

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	4	C27602	FSEU 2

- (6) Remove FSEU 2, M27002 from the E4-1 shelf.
- (7) Do a wiring check between FSEU 2, M27002 and slat position sensor 2R, M27204 on the right wing:
 - (a) Disconnect connector DM27204 from slat position sensor 2R, M27204 on the right wing.
 - (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DM27204 at the slat position sensor 2R, M27204 on the right wing (WDM 27-88-12):

DM27002AA	DM27204
pin A4	pin 1
pin B4	pin 2
pin D6	pin 3
pin D7	pin 4
pin E6	pin 5
pin E7	pin 6

- (c) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27204.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (e) Re-connect connector DM27204 to slat position sensor R2, M27204 on the right wing.
- (8) Do a wiring check between FSEU 2, M27002 and the slat position sensor 2L, M27203 on the left wing:
 - (a) Disconnect connector DM27203 from slat position sensor 2L, M27203 on the left wing.
 - (b) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DM27203 at the slat position sensor 2L, M27203 on the left wing (WDM 27-88-12):

EFFECTIVITY
ARO ALL

27-82 TASK 815

D633W103-ARO

Page 265
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AC

pin K4	.....	pin 1
pin J4	.....	pin 2
pin G6	.....	pin 3
pin G7	.....	pin 4
pin F6	.....	pin 5
pin F7	.....	pin 6

DM27203

(c) If you find a problem with the wiring, do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 2, M27002.
- 3) Re-connect connector DM27203.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.

(d) Re-connect connector DM27203 to slat position sensor L2, M27203 on the left wing.

- (9) Re-install FSEU 2, M27002 on the E4-1 shelf.
- (10) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

————— **END OF TASK** —————

816. Left Slat Position Sensor Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21172.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat position sensor 2L, M27203 on the left wing.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

EFFECTIVITY
ARO ALL

27-82 TASKS 815-816

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 266
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 2, M27002 and slat position sensor 2L, M27203:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Disconnect connector DM27203 from slat position sensor 2L, M27203 on the left wing.
- (d) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DM27203 at the slat position sensor 2L, M27203 on the left wing (WDM 27-88-12):

DM27002AC	DM27203
pin K4	pin 1
pin J4	pin 2
pin G6	pin 3
pin G7	pin 4
pin F6	pin 5
pin F7	pin 6

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27203.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (f) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (a) Re-connect connector DM27203 to slat position sensor 2L, M27203 on the left wing.
 - (b) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

EFFECTIVITY
ARO ALL

27-82 TASK 816

D633W103-ARO

Page 267
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

(Continued)

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	4	C27602	FSEU 2

- (c) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

817. Right Slat Position Sensor Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21182.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat position sensor 2R, M27204 on the right wing.

These are the tasks:

Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a wiring check between FSEU 2, M27002 and slat position sensor 2R, M27204:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect connector DM27204 from slat position sensor 2R, M27204 on the right wing.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DM27204 at the slat position sensor 2R, M27204 on the right wing (WDM 27-88-12):

EFFECTIVITY
ARO ALL

27-82 TASKS 816-817

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 268
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AA	DM27204
pin A4	pin 1
pin B4	pin 2
pin D6	pin 3
pin D7	pin 4
pin E6	pin 5
pin E7	pin 6

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27204.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.
- (f) If you do not find a problem with the wiring, or if the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (a) Re-connect connector DM27204 to slat position sensor 2R, M27204 on the right wing.
 - (b) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (c) If the MAT does not show ACTIVE for the maintenance message, then you corrected the fault.

————— END OF TASK —————

818. Slats Relay K27001 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20732.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.

EFFECTIVITY
ARO ALL

27-82 TASKS 817-818

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 269
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

Row	Col	Number	Name
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel.
 - (b) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (c) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27001 on the P210 panel (WDM 27-81-17):

DM27002AA	DK27001
pin G5	pin X2

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002 on the E4-1 shelf.
 - 3) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

EFFECTIVITY
ARO ALL

27-82 TASK 818

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 270
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- 5) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

819. Slats Secondary Auto Test, Relay K27001 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20742.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
- (a) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel.
- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27001 on the P210 panel (WDM 27-81-17):

EFFECTIVITY
ARO ALL

27-82 TASKS 818-819

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 271
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AA

pin G5

DK27002

pin X2

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002 on the E4-1 shelf.
 - 3) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 4) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 5) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

820. Slats Relay K27003 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20772.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-17).
- (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.

EFFECTIVITY
ARO ALL

27-82 TASKS 819-820

D633W103-ARO

Page 272
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector D21039P on the P210 panel (WDM 27-81-17):

DM27002AA	D21039P
pin E2	pin 16

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002 on the E4-1 shelf.
 - 3) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
- 4) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

821. Slats Secondary Auto Test, Relay K27003 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20782.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

Row	Col	Number	Name
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-82 TASKS 820-821

D633W103-ARO

Page 273
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the circuit breaker was not closed, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector D21039P on the P210 panel (WDM 27-81-17):

DM27002AA	D21039P
pin E2	pin 16
- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002 on the E4-1 shelf.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 4) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— **END OF TASK** —————

822. Slats Relay K27005 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20812.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-82 TASKS 821-822

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 274
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector D21039P on the P210 panel (WDM 27-81-17):

DM27002AA	D21039P
pin G2	pin 17

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002 on the E4-1 shelf.
 - 3) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- NOTE:** Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
- 4) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

823. Slats Secondary Auto Test, Relay K27005 Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-20822.

EFFECTIVITY
ARO ALL

27-82 TASKS 822-823

D633W103-ARO

Page 275
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED with the maintenance message, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - (a) If the MAT Existing Faults display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

NOTE: When you do the AMM procedure to install a component, it is not necessary to do the test given at the end of the AMM task. The steps in this FIM procedure are a sufficient test.

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, then do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the circuit breaker was closed, or if the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (2) Replace the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT Existing Faults display shows LATCHED for the maintenance message, then continue.
- (3) Do this wiring check:
 - (a) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector D21039P on the P210 panel (WDM 27-81-17):

DM27002AA	D21039P
pin G2	pin 17

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002 on the E4-1 shelf.
 - 3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.

EFFECTIVITY
ARO ALL

27-82 TASK 823

D633W103-ARO

Page 276
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

824. Slat Electric Motor Circuit Breaker Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-20142, 27-20152.

B. Fault Isolation Procedure

- (1) Close these circuit breakers:

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (2) Use the secondary system to extend the slats to another position. To extend them, do this task: Leading Edge Slat System Operation With Secondary Control, AMM TASK 27-81-00-860-801.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

825. Slat Secondary Relay Circuit Breaker Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-20182, 27-20192.

B. Fault Isolation Procedure

- (1) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (2) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.

- (a) If the MAT Existing Faults display does not show LATCHED for the maintenance message, then you corrected the fault.

————— END OF TASK —————

826. Primary Slats Operate Fast Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-25042, 27-25062.

EFFECTIVITY
ARO ALL

27-82 TASKS 823-826

D633W103-ARO

Page 277
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (3) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

827. Primary Slats Extend Slow Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25032.

EFFECTIVITY
ARO ALL

27-82 TASKS 826-827

D633W103-ARO

Page 278
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.

NOTE: This fault can occur if there is not sufficient hydraulic power available. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power. The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the slats.

- (a) If the maintenance message does not show on the ground test display, then do the Fault Isolation Procedure - Intermittent Extend Solenoid Problem below.
- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Extend Problem below.

C. Fault Isolation Procedure - Intermittent Extend Solenoid Problem



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Primary Extend solenoid on the slat primary control valve, V27003 in the left main wheel well:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the slat primary control valve, V27003 in the left wheel well.
- (c) Do a check of the resistance between pins 11 and 15 of connector DV27003B on the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):
- (d) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the Primary Extend solenoid on the slat primary control valve, V27003.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

EFFECTIVITY
ARO ALL

27-82 TASK 827

D633W103-ARO

Page 279
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- 2) Do a check of the resistance between pins 11 and 15 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-16).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- (e) Connect electrical connector DV27003B to the slat primary control valve, V27003 in the left wheel well.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (g) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - 1) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Extend Problem below.
 - 2) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

EFFECTIVITY
ARO ALL

27-82 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 280
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

D. Fault Isolation Procedure - Slow Extend Problem



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the slats. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-82 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 281
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (6) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
- (7) Remove FSEU 2, M27002 from the E4-1 shelf.
- (8) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

DM27002AC	DV27003B
pin F3	pin 12

- (a) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (9) Re-install FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (10) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (11) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

EFFECTIVITY
ARO ALL

27-82 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 282
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (12) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.
- These are the tasks:
- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- (b) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (13) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, replace the slat primary control valve, V27003.
- These are the tasks:
- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

828. Primary Slats Retract Slow Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25052.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.

NOTE: This fault can occur if there is not sufficient hydraulic power available. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power. The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the slats.

- (a) If the maintenance message does not show on the ground test display, then do the Fault Isolation Procedure - Intermittent Retract Solenoid Problem below.

EFFECTIVITY
ARO ALL

27-82 TASKS 827-828

D633W103-ARO

Page 283
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Retract Problem below.

C. Fault Isolation Procedure - Intermittent Retract Solenoid Problem



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Do a wiring check of the Primary Retract solenoid on the slat primary control valve, V27003 in the left main wheel well:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Disconnect electrical connector DV27003B from the slat primary control valve, V27003 in the left wheel well.
- (c) Do a check of the resistance between pins 4 and 14 of connector DV27003B on the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):
- (d) If the resistance is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
- 1) Replace the Primary Retract solenoid on the slat primary control valve, V27003.
- These are the tasks:
- Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.
- 2) Do a check of the resistance between pins 4 and 14 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-16).
- NOTE:** This does a check of the internal wiring on the primary control valve, V27003.
- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

These are the tasks:

EFFECTIVITY
ARO ALL

27-82 TASK 828

D633W103-ARO

Page 284
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- (e) Connect electrical connector DV27003B to the slat primary control valve, V27003 in the left wheel well.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (g) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - 1) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure - Slow Retract Problem below.
 - 2) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

D. Fault Isolation Procedure - Slow Retract Problem



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.

NOTE: The AC Motor Pumps (ACMPs) for the center hydraulic system will not supply sufficient hydraulic power to operate the slats. You must operate the Air Driven Pumps (ADPs) for the center hydraulic system to supply hydraulic power.

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-82 TASK 828

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 285
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
(5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (6) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
(7) Remove FSEU 2, M27002 from the E4-1 shelf.
(8) Do this wiring check between the Low Speed Solenoid and FSEU 2, M27002:
(a) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

DM27002AC	DV27003B
pin F3	pin 12

- (b) If you find a problem with the wiring, do these steps:
1) Repair the wiring.
2) Re-install FSEU 2, M27002.
3) Re-connect connector DV27003B.
4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2

EFFECTIVITY
ARO ALL

27-82 TASK 828

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 286
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, or the maintenance message shows on the ground test display, then continue.
- (9) Do this wiring check between the Retract Solenoid and FSEU 2:
- (a) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

DM27002AC	DV27003B
pin D2	pin 4

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- b) If the maintenance message shows on the ground test display, then continue.
- (10) Re-connect connector DV27003B to the slat primary control valve, V27003.

EFFECTIVITY
ARO ALL

27-82 TASK 828

D633W103-ARO

Page 287
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (11) Re-install FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (13) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.
- These are the tasks:
- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- (b) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, replace the slat primary control valve, V27003.
- These are the tasks:
- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (15) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (16) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

27-82 TASK 828

D633W103-ARO

Page 288
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

829. Primary Slats Low Speed Extend Slow Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25072.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the center hydraulic system is not pressurized, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.

NOTE: Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (5) Replace the Primary Extend solenoid on the slat primary control valve, V27003.

These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

EFFECTIVITY
ARO ALL

27-82 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 289
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (7) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
- (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - (b) If the MAT shows PASSED after the ground test, then continue.
- (8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.
- (9) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (10) Do a check of the internal wiring in the primary control valve, V27003 for the Primary Extend solenoid:
- (a) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
 - (b) Do a check of the resistance between pins 11 and 15 of connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-16):
 - (c) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

EFFECTIVITY
ARO ALL

27-82 TASK 829

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 290
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 2) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
- 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (d) If the resistance between the pins is in the limit, or if the maintenance message shows on the ground test display, then continue.
- (11) Replace the slat hydraulic motor.

These are the tasks:

Slat Hydraulic Motor Removal, AMM TASK 27-81-33-000-801,

Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.

- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (12) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (13) Remove FSEU 2, M27002 from the E4-1 shelf.
- (14) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

DM27002AC	DV27003B
pin F2	pin 11

- (a) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27003B.

EFFECTIVITY
ARO ALL

27-82 TASK 829

D633W103-ARO

Page 291
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (15) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

D21026P	DV27003B
pin 14	pin 15

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-82 TASK 829

D633W103-ARO

Page 292
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (16) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (17) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (18) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (19) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (20) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

830. Primary Slats Low Speed Operate Fast Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 27-25082, 27-25102.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-82 TASKS 829-830

D633W103-ARO

Page 293
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the Low Speed solenoid on the slat primary control valve, V27003.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.
 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (4) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - (b) If the MAT shows PASSED after the ground test, then continue.
 - (b) If the MAT shows PASSED after the ground test, then continue.
- (6) Open these circuit breakers and install safety tags:
Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1
- (7) Do a check of the internal wiring in the primary control valve, V27003 for the Low Speed solenoid:
 - (a) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.

EFFECTIVITY
ARO ALL

27-82 TASK 830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 294
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) Do a check of the resistance between pins 5 and 12 of connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-16):
- (c) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

- 1) Replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- 2) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
- 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

- 5) If the resistance between the pins is in the limit, or if the maintenance message shows on the ground test display, then continue.

- (8) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (9) Remove FSEU 2, M27002 from the E4-1 shelf.
- (10) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

DM27002AC	DV27003B
pin F3	pin 12

- (a) If you find a problem with the wiring, do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 2, M27002.
- 3) Re-connect connector DV27003B.

EFFECTIVITY
ARO ALL

27-82 TASK 830

D633W103-ARO

Page 295
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (11) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

D21026P	DV27003B
pin 14	pin 5

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (12) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (13) Re-connect connector DV27003B to the slat primary control valve, V27003.

EFFECTIVITY
ARO ALL

27-82 TASK 830

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 296
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL

- (14) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (15) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, slats Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (16) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

831. Primary Slats Low Speed Retract Slow Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25092.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the center hydraulic system is not pressurized, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
- NOTE:** Use the 29 HYDRAULICS maintenance page on EICAS to make sure the C1 or C2 ADP operates and hydraulic pressure is more than 2500 psi.

EFFECTIVITY
ARO ALL

27-82 TASKS 830-831

D633W103-ARO

Page 297
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (2) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (5) Replace the Primary Retract solenoid on the slat primary control valve, V27003.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.
 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If the maintenance message shows on the ground test display, then continue.
- (6) For the center hydraulic system, do this task: Main Hydraulic System Pressurization, AMM TASK 29-11-00-860-801.
- (7) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 1.
 - (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
 - (b) If the MAT shows PASSED after the ground test, then continue.
- (8) For the center hydraulic system, do this task: Main Hydraulic System Power Removal, AMM TASK 29-11-00-860-808.

EFFECTIVITY
ARO ALL

27-82 TASK 831

D633W103-ARO

Page 298
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (9) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (10) Do a check of the internal wiring in the primary control valve, V27003 for the Primary Retract solenoid:
- Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
 - Do a check of the resistance between pins 4 and 14 of connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-16):
 - If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - Replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
 - Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - If the maintenance message does not show on the ground test display, then you corrected the fault.
 - If the resistance between the pins is in the limit, or if the maintenance message shows on the ground test display, then continue.
- (11) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (12) Remove FSEU 2, M27002 from the E4-1 shelf.

EFFECTIVITY
ARO ALL

27-82 TASK 831

D633W103-ARO

Page 298.1
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (13) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

DM27002AC	DV27003B
pin D2	pin 4

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (14) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

D21026P	DV27003B
pin 14	pin 14

- (a) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-82 TASK 831

D633W103-ARO

Page 298.2
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then continue.
- (15) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (16) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (17) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (18) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slats Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBHEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (19) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

832. Secondary Slats Extend Slow Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25112.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-82 TASKS 831-832

D633W103-ARO

Page 298.3
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, continue.
- (2) Use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
- (a) If the slats do not operate in alternate mode, then replace the slat electric motor, B27001.
- These are the tasks:
- Slat Electric Motor Removal, AMM TASK 27-81-34-000-801,
Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
- 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the slats operate in alternate mode, continue.
- (3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
- (a) If the MAT does not show PASSED after the ground test, then replace FSEU 2, M27002.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.

EFFECTIVITY
ARO ALL

27-82 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.4
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the MAT shows PASSED after the ground test, then continue.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (5) Remove FSEU 2, M27002 from the E4-1 shelf.
- (6) Do this check of the slats bypass/clutch relay, K27001:
 - (a) Remove the slats bypass/clutch relay, K27001 from the P210 power management panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27001 at the P210 power management panel (WDM 27-81-17):

DM27002AA	DK27001
pin G5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Install the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-82 TASK 832

D633W103-ARO

Page 298.5
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO 011-999 (Continued)

(Continued)

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 2. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (h) If the maintenance message shows on the ground test display, then replace the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
 - (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (j) If the maintenance message shows on the ground test display, then continue.
- (7) Do this check of the Slats Extend relay, K27003:

EFFECTIVITY
ARO ALL

27-82 TASK 832

D633W103-ARO

Page 298.6
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Remove the slats extend relay, K27003 from the P210 power management panel (WDM 27-81-17).
- (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27003 at the P210 power management panel (WDM 27-81-17):

DM27002AA	DK27003
pin E2	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Install the slats extend relay, K27003 on the P210 power management panel (WDM 27-81-17).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

Row	Col	Number	Name
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 2. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the slats extend relay, K27003 on the P210 power management panel (WDM 27-81-17).
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-82 TASK 832

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.7
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the slats extend relay, K27003 on the P210 power management panel (WDM 27-81-17).
- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

833. Secondary Slats Retract Slow Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25122.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

EFFECTIVITY
ARO ALL

27-82 TASKS 832-833

D633W103-ARO

Page 298.8
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, then continue.
- (2) Use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
- (a) If the slats do not operate in alternate mode, replace the slat electric motor, B27001.
These are the tasks:
Slat Electric Motor Removal, AMM TASK 27-81-34-000-801,
Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
 - 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, or if the slats operate in alternate mode, then continue.
 - (3) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 1, Test of Slats Only.
 - (a) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - 1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the MAT does not show PASSED after the ground test, then continue.
 - (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-82 TASK 833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.9
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO ALL

- (5) Remove FSEU 2, M27002 from the E4-1 shelf.
- (6) Do this check of the slats bypass/clutch relay, K27001:
 - (a) Remove the slats bypass/clutch relay, K27001 from the P210 power management panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27001 at the P210 power management panel (WDM 27-81-17):

DM27002AA	DK27001
pin G5	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Install the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 2. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-82 TASK 833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.10
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(Continued)

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (j) If the maintenance message shows on the ground test display, then continue.
- (7) Do this check of the slats retract relay, K27005:
 - (a) Remove the slats retract relay, K27005 from the P210 power management panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27005 at the P210 power management panel (WDM 27-81-17):

DM27002AA	DK27005
pin G2	pin X2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Install the slats retract relay, K27005 on the P210 power management panel (WDM 27-81-17).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-82 TASK 833

D633W103-ARO

Page 298.11
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, or if the maintenance message shows on the ground test display, then install a new FSEU 2. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (e) Install the slats retract relay, K27005 on the P210 power management panel (WDM 27-81-17).
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (g) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (h) If the maintenance message shows on the ground test display, then replace the slat retract relay, K27005 on the P210 power management panel (WDM 27-81-17).
- (i) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-82 TASK 833

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.12
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

834. Secondary Slats Do Not Operate Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25132.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breakers were closed, then continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Do this wiring check of the Bypass Solenoid on the slat primary control valve, V27003:

EFFECTIVITY
ARO ALL

27-82 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.13
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (b) Disconnect electrical connector DV27003A from the slat primary control valve V27003 in the left wheel well.
- (c) Do a check of the resistance between pins 10 and 16 of connector DV27003A on the slat primary control valve V27003 in the left wheel well (WDM 27-81-17):
- (d) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

- 1) Replace the Bypass solenoid on the slat primary control valve V27003.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- 2) Do a check of the resistance between pins 10 and 16 of connector DV27003A on the slat primary control valve, V27003 again (WDM 27-81-17).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.
- 3) Connect electrical connector DV27003A to the slat primary control valve V27003 in the left wheel well.
- 4) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 6) If you do not find a problem with the wiring, then continue.
- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
- (a) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

EFFECTIVITY
ARO ALL

27-82 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.14
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- 1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the MAT does not show PASSED after the ground test, then continue.
- (6) Do this check of the slats bypass/clutch relay, K27001:
 - a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Remove the slats bypass/clutch relay, K27001 from the P210 power management panel (WDM 27-81-17).
- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27001 at the P210 power management panel (WDM 27-81-17):

DM27002AA	DK27001
pin G5	pin X2

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Install the slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-82 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.15
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
- (7) Install a new slats bypass/clutch relay, K27001 on the P210 power management panel (WDM 27-81-17).
- (8) Re-install FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (9) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (11) Do this wiring check between the slats retract relay, K27005 and FSEU 2, M27002:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-82 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.16
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Remove the slats retract relay, K27005 from the P210 power management panel (WDM 27-81-17).
- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27005 at the P210 power management panel (WDM 27-81-17):

DM27002AA	DK27005
pin G2	pin X2

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Install the slats retract relay, K27005 on the P210 power management panel (WDM 27-81-17).
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - f) If the maintenance message shows on the ground test display, then continue.
- (12) Install a new slats retract relay, K27005 on the P210 power management panel (WDM 27-81-17).
- (13) Re-install FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-82 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.17
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (14) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (15) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (16) Replace the slat primary control valve, V27003.
- These are the tasks:
- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- (17) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (18) Replace the slat electric motor, B27001.
- These are the tasks:
- Slat Electric Motor Removal, AMM TASK 27-81-34-000-801,
Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
- (19) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (20) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-82 TASK 834

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.18
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

835. Slats Shutoff Valve Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25142.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Replace the Shutoff Solenoid on the slat primary control valve, V27003 in the left wheel well.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

 - (a) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
 - (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

EFFECTIVITY
ARO ALL

27-82 TASK 835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.19
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Disconnect connector DV27003A from the slat primary control valve, V27003 in the left wheel well.
- (d) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003A at the slat primary control valve, V27003 (WDM 27-81-16):

DM27002AC	DV27003A
pin D5	pin 12

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27003A to the slat primary control valve, V27003.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-82 TASK 835

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.20
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (7) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

836. Slats Primary System Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25152.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check to see if the slat drive system is locked:
- (a) Use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
 - (b) If the slats operate with the alternate system, the slat drive system is not locked.
 - (c) If the slats do not operate with the alternate system, the slat drive system is locked.
- (2) If the slat drive system is locked, do these steps:
- (a) Open this access panel to get access to the slat power drive unit (PDU):

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel
 - (b) Look at the torque trip indicators on the slat PDU to see if the drive system is locked in one of the wings.
 - (c) If neither of the torque trip indicators are extended, disconnect the torque tubes from the slat power drive unit (PDU).
 - (d) Use the wrench flats on the torque tube on the outboard side of the PDU to manually extend and retract the left wing slats.
 - (e) Use a LE slat drive torque tube coupling adapter, SPL-1694 on the torque tube on the inboard side of the PDU to manually extend and retract the right wing slats.
 - (f) If you can extend and retract the slats on each wing, do these steps:
 - 1) Do this task: Slat Electric Motor Removal, AMM TASK 27-81-34-000-801.
 - 2) Use a LE slat drive torque tube coupling adapter, SPL-1694 to try to turn the slat power drive unit (PDU) in the extend and retract directions.
 - 3) If you can turn the PDU, install a new slat electric motor, B27001. To install it, do this task: Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.

EFFECTIVITY
ARO ALL

27-82 TASKS 835-836

D633W103-ARO

Page 298.21
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) If you cannot turn the PDU, do this task: Slat Hydraulic Motor Removal, AMM TASK 27-81-33-000-801.
- 5) Use a LE slat drive torque tube coupling adapter, SPL-1694 to try to turn the slat power drive unit (PDU) in the extend and retract directions.
- 6) If you cannot turn the PDU, replace the slat PDU.
These are the tasks:
Slat Power Drive Unit (PDU) Removal, AMM TASK 27-81-31-000-801,
Slat Power Drive Unit (PDU) Installation, AMM TASK 27-81-31-400-801.
- 7) Try to turn the output shaft on the slat hydraulic motor.
- 8) If you can turn the output shaft on the hydraulic motor, replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- 9) If you cannot turn the output shaft on the slat hydraulic motor, install a new slat hydraulic motor. To install it, do this task: Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
- 10) If it is necessary, re-install the slat hydraulic motor. To install it, do this task: Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
- 11) If it is necessary, re-install the slat electric motor, B27003. To install it, do this task: Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
- (g) If one of the torque trip indicators is extended or if you cannot extend and retract the slats on one of the wings, replace the gearbox where the slat drive system is locked.
- (h) Connect the torque tubes to the slat PDU.
- (i) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.
- (j) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (3) If the slat drive system is not locked, then continue.
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 1.
 - (a) If the MAT does not show PASSED after the ground test, then replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - (b) If the MAT shows PASSED after the ground test, then replace FSEU 2, M27002.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-82 TASK 836

D633W103-ARO

Page 298.22
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then replace the slat primary control valve, V27003.
- These are the tasks:
- Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
- (b) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (6) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (7) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (8) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (9) Do a wiring check between the slat primary control valve, V27003 and FSEU 2, M27002:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
- (c) Disconnect connectors DV27003A and DV27003B from the slat primary control valve, V27003 in the left wheel well.
- (d) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003A at the slat primary control valve, V27003 (WDM 27-81-16):

EFFECTIVITY
ARO ALL

27-82 TASK 836

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.23
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AC

pin D5 pin 12

DV27003A

- (e) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003B at the slat primary control valve, V27003 (WDM 27-81-16):

DM27002AC

pin D2 pin 4

pin F2 pin 11

pin F3 pin 12

DV27003B

- (f) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install FSEU 2, M27002.
- 3) Re-connect connectors DV27003A and DV27003B to the slat primary control valve, V27003.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (g) If you do not find a problem with the wiring, then continue.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (10) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (11) Replace the slat hydraulic motor.
- These are the tasks:
- Slat Hydraulic Motor Removal, AMM TASK 27-81-33-000-801,
- Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
- (12) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Slat Primary Control Valve Test-FSEU 2.

EFFECTIVITY
ARO ALL

27-82 TASK 836

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.24
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

837. Slat Secondary System Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25162.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (a) If the circuit breakers were not closed, do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the circuit breakers were closed, or if the maintenance message shows on the ground test display, then continue.
- (2) Do this check to see if the slat drive system is locked:
- (a) Use the primary system to extend and retract the slats. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
- (b) If the slats do not operate with the primary system, then the slat drive system is locked.
- (c) If the slats operate with the primary system, then the slat drive system is not locked.
- (3) If the slat drive system is locked, do these steps:
- (a) Open this access panel to get access to the slat power drive unit (PDU):
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 511AB | Leading Edge PDU Panel |

EFFECTIVITY
ARO ALL

27-82 TASKS 836-837

D633W103-ARO



777-200/300 FAULT ISOLATION MANUAL

- (b) Look at the torque trip indicators on the slat PDU to see if the drive system is locked in one of the wings.
- (c) If neither of the torque trip indicators are extended, disconnect the torque tubes from the slat power drive unit (PDU).
- (d) Use the wrench flats on the torque tube on the outboard side of the PDU to manually extend and retract the left wing slats.
- (e) Use a LE slat drive torque tube coupling adapter, SPL-1694 on the torque tube on the inboard side of the PDU to manually extend and retract the right wing slats.
- (f) If you can extend and retract the slats on each wing, do these steps:
 - 1) Do this task: Slat Electric Motor Removal, AMM TASK 27-81-34-000-801.
 - 2) Use a LE slat drive torque tube coupling adapter, SPL-1694 to try to turn the slat power drive unit (PDU) in the extend and retract directions.
 - 3) If you can turn the PDU, install a new slat electric motor, B27001. To install it, do this task: Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
 - 4) If you cannot turn the PDU, do this task: Slat Hydraulic Motor Removal, AMM TASK 27-81-33-000-801.
 - 5) Use a LE slat drive torque tube coupling adapter, SPL-1694 to try to turn the slat power drive unit (PDU) in the extend and retract directions.
 - 6) If you cannot turn the PDU, replace the slat PDU.

These are the tasks:
Slat Power Drive Unit (PDU) Removal, AMM TASK 27-81-31-000-801,
Slat Power Drive Unit (PDU) Installation, AMM TASK 27-81-31-400-801.
 - 7) Try to turn the output shaft on the slat hydraulic motor.
 - 8) If you can turn the output shaft on the hydraulic motor, replace the slat primary control valve, V27003.

These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - 9) If you cannot turn the output shaft on the slat hydraulic motor, install a new slat hydraulic motor. To install it, do this task: Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
 - 10) If it is necessary, re-install the slat hydraulic motor. To install it, do this task: Slat Hydraulic Motor Installation, AMM TASK 27-81-33-400-801.
 - 11) If it is necessary, re-install the slat electric motor, B27003. To install it, do this task: Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
- (g) If one of the torque trip indicators is extended or if you cannot extend and retract the slats on one of the wings, replace the gearbox where the slat drive system is locked.
- (h) Connect the torque tubes to the slat PDU.
- (i) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.
- (j) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.

EFFECTIVITY
ARO ALL

27-82 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.26
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.
- (4) If the slat drive system is not locked, use the alternate system to extend and retract the slats. To extend and retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
NOTE: This step is intended to find if the slats do not extend, retract or do not operate at all with electric power.
- (5) If the slats do not operate with the alternate system, then replace the slat electric motor, B27001.
These are the tasks:
Slat Electric Motor Removal, AMM TASK 27-81-34-000-801,
Slat Electric Motor Installation, AMM TASK 27-81-34-400-801.
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
 - (6) If the slats do not extend with the alternate system, then replace the Slats Extend Relay, K27003 on the P210 Panel (WDM 27-81-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
 - (7) If the slats do not retract with the alternate system, then replace the Slats Retract Relay, K27005 on the P210 Panel (WDM 27-81-17).
 - (a) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
 - (8) Replace the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
 - (9) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
 - (10) Do a check of the wiring between the Slats Bypass/Clutch Relay, K27001 and FSEU 2, M27002:

EFFECTIVITY
ARO ALL

27-82 TASK 837

D633W103-ARO

Page 298.27
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (b) Remove FSEU 2, M27002 from the E4-1 shelf.
(c) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel (WDM 27-81-17).
(d) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27001 on the P210 panel (WDM 27-81-17):

DM27002AA	DK27001
pin G5	pin X2

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 shelf.
 - 3) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (11) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
(12) Open these circuit breakers and install safety tags:

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (13) Do a check of the wiring between the Slats Extend Relay, K27003 and FSEU 2, M27002:
- (a) Remove the Slats Extend Relay, K27003 from the P210 panel (WDM 27-81-17).
 - (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27003 on the P210 panel (WDM 27-81-17):

EFFECTIVITY
ARO ALL

27-82 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.28
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AA

pin E2 pin X2

DK27003

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 shelf.
 - 3) Re-install the Slats Extend Relay, K27003 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (14) Re-install the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-17).
- (15) Do this check of the wiring between the Slats Retract Relay, K27005 and FSEU 2, M27002:
- (a) Remove the Slats Retract Relay, K27005 from the P210 panel (WDM 27-81-17).
- (b) Do a wiring check between these pins of connector DM27002AA on the E4-1 shelf and connector DK27005 on the P210 panel (WDM 27-81-17):

DM27002AA

pin G2 pin X2

DK27005

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2 on the E4-1 shelf.
 - 3) Re-install the Slats Retract Relay, K27005 on the P210 panel.

EFFECTIVITY
ARO ALL

27-82 TASK 837

D633W103-ARO

Page 298.29
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

(d) If you do not find a problem with the wiring, then continue.

- (16) Do this check of the wiring between the Slats Retract Relay, K27005 and the slat electric motor, B27001:

- (a) Open this access panel on the lower surface of the left wing:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (b) Disconnect the electrical connector DB27001 from the slat electric motor, B27001.
- (c) Do a wiring check between these pins of connector DB27001 on the slat electric motor and connector DK27005 on the P210 panel (WDM 27-81-18):

DB27001	DK27005
pin 1	pin A2
pin 2	pin C2
pin 3	pin B2

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect electrical connector DB27001 to the slat electric motor.
 - 3) Re-install the Slats Retract Relay, K27005 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

EFFECTIVITY
ARO ALL

27-82 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.30
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (e) If you do not find a problem with the wiring, then continue.
- (17) Re-install the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-17).
- (18) Do this check of the wiring between the Slats Bypass/Clutch Relay, K27001 and the slat electric motor, B27001:
 - (a) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel.
 - (b) Do a wiring check between these pins of connector DB27001 on the slat electric motor and connector DK27001 on the P210 panel (WDM 27-81-17):

DB27001	DK27001
pin 6	pin B2

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect electrical connector DB27001 to the slat electric motor.
 - 3) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.

EFFECTIVITY
ARO ALL

27-82 TASK 837

D633W103-ARO

Page 298.31
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
- (19) Connect the electrical connector DB27001 to the slat electric motor, B27001.
- (20) Close this access panel on the lower surface of the left wing:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 511AB | Leading Edge PDU Panel |
- (21) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
- (22) Do this check of the wiring between the Slats Extend Relay, K27003 and the Slats Retract Relay, K27005:
- (a) Remove the Slats Extend Relay, K27003 from the P210 panel (WDM 27-81-18).
- (b) Remove the Slats Retract Relay, K27005 from the P210 panel (WDM 27-81-18).
- (c) Do a wiring check between these pins of connector DK27003 on and connector DK27005 on the P210 panel (WDM 27-81-18):

DK27003		DK27005	
pin A1	.....	pin A3	
pin A3	.....	pin A1	
pin B1	.....	pin B3	
pin B3	.....	pin C1	
pin C1	.....	pin C3	
pin C3	.....	pin B1	

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the Slats Extend Relay, K27003 on the P210 panel.
 - 3) Re-install the Slats Retract Relay, K27005 on the P210 panel.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.

EFFECTIVITY
ARO ALL

27-82 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.32
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (23) Re-install the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-17).
- (24) Re-install the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-17).
- (25) Do this check of the wiring between the Slats Bypass/Clutch Relay, K27001 and the slat primary control valve, V27003:
- (a) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel (WDM 27-81-18).



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (b) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (c) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (d) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (e) Disconnect electrical connector DV27003A from the slat primary control valve, V27003 in the left main wheel well.
- (f) Do a wiring check between these pins of connector DK27001 on the P210 panel and connector DV27003A on the slat primary control valve (WDM 27-81-17):

DK27001	DV27003A
pin A2	pin 16

- (g) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel.
 - 3) Re-connect connector DV27003A to the slat primary control valve, V27003.

EFFECTIVITY
ARO ALL

27-82 TASK 837

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.33
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO ALL			
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - b) If the maintenance message shows on the ground test display, then continue.
- (26) Do a wiring check between the Slat Extend Relay, K27003, the Slat Retract Relay, K27005 and the Slat Limit Switch, S27005. Repair any damaged wiring found and replace the Slat Limit Switch, S27005, as necessary WDM 27-81-17.

These are the tasks:

Slat Limit Switch Removal, AMM TASK 27-81-32-000-801

Slat Limit Switch Installation, AMM TASK 27-81-32-400-801

- (27) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (28) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (29) Do this ground test on the MAT: 27 High Lift System, System Test, Secondary System Test-FSEU 2, Test of Slats Only.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-82 TASK 837

D633W103-ARO

Page 298.34
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (30) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

838. Slat Asymmetry Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25172.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace FSEU 2, M27002.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Use the alternate system to retract the slats to the retracted position. To retract them, do this task: Leading Edge Slat System Operation With Alternate Control, AMM TASK 27-81-00-860-802.
- (3) Look at the SLAT POS L2 and SLAT POS R2 indications on the FLAP/SLAT maintenance page on EICAS.
- (a) Replace the slat position sensor for the slat position indication which is further from 10.
- These are the tasks:
- Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,
Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.
- NOTE:** The slat position sensor for SLAT POS L2 is M27203 on the left wing. The slat position sensor for SLAT POS R2 is M27204 on the right wing.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Replace the other slat position sensor 2L, M27203 or 2R, M27204.
- These are the tasks:
- Slat Position Sensor Removal, AMM TASK 27-88-03-000-801,

EFFECTIVITY
ARO ALL

27-82 TASKS 837-838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.35
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Slat Position Sensor Installation, AMM TASK 27-88-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (6) Remove FSEU 2, M27002 from the E4-1 shelf.
- (7) Do a check of the wiring between FSEU 2, M27002 and the slat position sensor 2L, M27203:
- (a) Disconnect the connector DM27203 from slat position sensor 2L, M27203.
 - (b) Do a wiring check between these pins of connector DM27002AC at the E4-1 shelf and connector DM27203 at the slat position sensor 2L, M27203 (WDM 27-88-12):

DM27002AC	DM27203
pin K4	pin 1
pin J4	pin 2
pin G6	pin 3
pin G7	pin 4
pin F6	pin 5
pin F7	pin 6

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27203.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you did not find a problem with the wiring, then continue.
- (e) Connect the connector DM27203 to slat position sensor 2L, M27203.
- (8) Do a check of the wiring between FSEU 2, M27002 and the slat position sensor 2R, M27204:
- (a) Disconnect the connector DM27204 from slat position sensor 2R, M27204.
 - (b) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DM27204 at the slat position sensor 2R, M27204 (WDM 27-88-12):

EFFECTIVITY
ARO ALL

27-82 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.36
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AA	DM27204
pin A4	pin 1
pin B4	pin 2
pin D6	pin 3
pin D7	pin 4
pin E6	pin 5
pin E7	pin 6

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DM27204.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (d) If you did not find a problem with the wiring, then continue.
- (e) Connect the connector DM27204 to slat position sensor 2R, M27204.
- (9) Re-install FSEU 2, M27002 on the E4-1 shelf.
- (10) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (11) Do this ground test on the MAT: 27 High Lift System, System Test, Primary System Test-FSEU 2, Test of Slats Only.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (12) Look for a broken or disconnected torque tube:
 - (a) Find which wing has the broken or disconnected torque tube:
 - 1) Look at the 27-FLAP/SLAT maintenance page on the EICAS.
 - 2) Open this access panel to get access to the torque tubes on the slat power drive unit (PDU):

Number	Name/Location
511AB	Leading Edge PDU Panel

EFFECTIVITY
ARO ALL

27-82 TASK 838

D633W103-ARO

Page 298.37
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) Use the wrench flats on the torque tube outboard of the PDU to manually turn the slat drive system a maximum of four torque tube turns.

NOTE: This will move the slats approximately 1/2 inch.

- 4) If the SLAT POS L 2 indication on the maintenance page does not change when you turn the drive system, then there is a broken or disconnected torque tube in the left wing.
- 5) If the SLAT POS R 2 indication on the maintenance page does not change when you turn the drive system, then there is a broken or disconnected torque tube in the right wing.

- (b) If there is a broken or disconnected torque tube in the right wing, do these steps until you find the torque tube:

- 1) Look at the torque tubes and gearboxes that go through the aft end of the forward cargo compartment.
- 2) Look at the slats on the right wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.

- 3) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.
- 4) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
- 5) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
- 6) If it is necessary, remove these access panels for the offset gearboxes on the lower surface of the right wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- (c) If there is a broken or disconnected torque tube in the left wing, do these steps until you find the torque tube:

- 1) Look at the slats on the left wing for a pair of slats that do not fair or a slat that is skewed.

NOTE: To find a skewed slat, look at the clearance between the lower trailing edge of the slat and the fixed lower panels.

- 2) If you see a pair of slats that do not fair, look for a broken or disconnected torque tube between the slats.

EFFECTIVITY
ARO ALL

27-82 TASK 838

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.38
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 3) If you see a slat that appears to be skewed, look for a broken or disconnected torque tube between the offset gearboxes for that slat.
- 4) Look for a broken torque tube between the outboard end of the inboard slat and the inboard end of the outboard slats.
- 5) If it is necessary, remove these access panels for the offset gearboxes on the lower surface of the left wing to get access to the torque tubes:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

- 6) Connect the inboard torque tube to the slat PDU.
- (13) Replace the applicable torque tube or torque tube support:
- (a) If it is necessary, replace a torque tube in the cargo compartment.
These are the tasks:
Cargo Compartment Slat Torque Tube Removal, AMM TASK 27-81-38-000-803,
Cargo Compartment Slat Torque Tube Installation, AMM TASK 27-81-38-400-803.
 - (b) If it is necessary, replace a torque tube on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-801,
Inboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-801.
 - (c) If it is necessary, replace a torque tube on the outboard side of the wing.
These are the tasks:
Outboard Wing Slat Torque Tube Removal, AMM TASK 27-81-38-000-802,
Outboard Wing Slat Torque Tube Installation, AMM TASK 27-81-38-400-802.
 - (d) If it is necessary, replace a leading edge pressure seal.
These are the tasks:
Leading Edge Pressure Seal Removal, AMM TASK 27-81-39-000-804,
Leading Edge Pressure Seal Installation, AMM TASK 27-81-39-400-804.
 - (e) If it is necessary, replace a torque tube support on the inboard side of the wing.
These are the tasks:
Inboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-801,
Inboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-801.
 - (f) If it is necessary, replace a torque tube support on the outboard side of the wing.
These are the tasks:

EFFECTIVITY
ARO ALL

27-82 TASK 838

D633W103-ARO

Page 298.39
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Outboard Wing Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-802,
Outboard Wing Slat Torque Tube Support Installation, AMM TASK 27-81-39-400-802.

- (g) If it is necessary, replace a torque tube support in the cargo compartment.

These are the tasks:

Cargo Compartment Slat Torque Tube Support Removal, AMM TASK 27-81-39-000-803,
Cargo Compartment Torque Tube Support Installation, AMM TASK 27-81-39-400-803.

- (14) Install the applicable access panels:

- (a) Close this access panel below the PDU:

<u>Number</u>	<u>Name/Location</u>
511AB	Leading Edge PDU Panel

- (b) Close these access panels on the right wing:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
621AAB	Outboard Fixed Leading Edge Panel
621ACB	Outboard Fixed Leading Edge Panel
621BB	Outboard Fixed Leading Edge Panel
621EB	Outboard Fixed Leading Edge Panel
621GB	Outboard Fixed Leading Edge Panel
621JB	Outboard Fixed Leading Edge Panel
621MB	Outboard Fixed Leading Edge Panel
621PB	Outboard Fixed Leading Edge Panel

- (c) Close these access panels on the left wing:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
521AAB	Outboard Fixed Leading Edge Panel
521ACB	Outboard Fixed Leading Edge Panel
521BB	Outboard Fixed Leading Edge Panel
521EB	Outboard Fixed Leading Edge Panel
521GB	Outboard Fixed Leading Edge Panel
521JB	Outboard Fixed Leading Edge Panel
521MB	Outboard Fixed Leading Edge Panel
521PB	Outboard Fixed Leading Edge Panel

————— **END OF TASK** —————

839. Slats Extend Solenoid Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25422.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-82 TASKS 838-839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.40
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
- (6) Do this wiring check of the Primary Extend Solenoid on the slat primary control valve, V27003:
- (a) Do a check of the resistance between pins 11 and 15 of connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-16):
- (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
- 1) Replace the Primary Extend solenoid on the slat primary control valve V27003.

These are the tasks:

EFFECTIVITY
ARO ALL

27-82 TASK 839

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.41
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- 2) Do a check of the resistance between pins 11 and 15 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-16).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.
- 3) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (7) Do this wiring check between the slat primary control valve, V27003 and the P210 panel:
- (a) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

D21026P	DV27003B
pin 14	pin 15

- (b) If there is a problem with the wiring, do these steps:
- 1) Repair the wiring.
- 2) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.

EFFECTIVITY
ARO ALL

27-82 TASK 839

D633W103-ARO

Page 298.42
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

(c) If you do not find a problem with the wiring, then continue.

- (8) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (9) Remove FSEU 2, M27002 from the E4-1 shelf.
- (10) Do this wiring check between the slat Primary Extend Solenoid and FSEU 2:
- (a) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

DM27002AC	DV27003B
pin F2	pin 11

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.

EFFECTIVITY
ARO ALL

27-82 TASK 839

D633W103-ARO

Page 298.43
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

— END OF TASK —

840. Slats Retract Solenoid Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25432.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.

EFFECTIVITY
ARO ALL

27-82 TASKS 839-840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.44
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
- (6) Do this wiring check of the Primary Retract Solenoid on the slat primary control valve, V27003:
 - (a) Do a check of the resistance between pins 4 and 14 of connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-16):
 - (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the Primary Retract solenoid on the slat primary control valve V27003.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.
 - 2) Do a check of the resistance between pins 4 and 14 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-16).
NOTE: This does a check of the internal wiring on the primary control valve, V27003.
 - a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.
These are the tasks:

EFFECTIVITY
ARO ALL

27-82 TASK 840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.45
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.
- 3) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If you do not find a problem with the wiring, then continue.
- (7) Do this wiring check between the slat primary control valve, V27003 and the P210 panel:
 - (a) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

D21026P	DV27003B
pin 14	pin 14

- (b) If there is a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If you do not find a problem with the wiring, then continue.

EFFECTIVITY
ARO ALL

27-82 TASK 840

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.46
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (8) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (9) Remove FSEU 2, M27002 from the E4-1 shelf.
- (10) Do this wiring check between the slat Primary Retract Solenoid and FSEU 2:
- (a) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

DM27002AC	DV27003B
pin D2	pin 4

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-82 TASK 840

D633W103-ARO

Page 298.47
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— **END OF TASK** —————

841. Slats Low Speed Solenoid Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25442.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.

EFFECTIVITY
ARO ALL

27-82 TASKS 840-841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.48
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27003B from the slat primary control valve V27003 in the left wheel well.
- (6) Do this wiring check of the Primary Low Speed Solenoid on the slat primary control valve, V27003:
 - (a) Do a check of the resistance between pins 5 and 12 of connector DV27003B on the slat primary control valve V27003 in the left wheel well (WDM 27-81-16):
 - (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:
 - 1) Replace the Primary Low Speed solenoid on the slat primary control valve V27003.
These are the tasks:
Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,
Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.
 - 2) Do a check of the resistance between pins 5 and 12 of connector DV27003B on the slat primary control valve, V27003 again (WDM 27-81-16).
NOTE: This does a check of the internal wiring on the primary control valve, V27003.
 - a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.
These are the tasks:
Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,
Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.
 - b) If the resistance between the pins is in the limit, then continue.
 - 3) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

EFFECTIVITY
ARO ALL

27-82 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.49
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If you do not find a problem with the wiring, then continue.
- (7) Do this wiring check between the slat primary control valve, V27003 and the P210 panel:
 - (a) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

D21026P	DV27003B
pin 14	pin 5

- (b) If there is a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Connect electrical connector DV27003B to the slat primary control valve V27003 in the left wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (9) Remove FSEU 2, M27002 from the E4-1 shelf.
- (10) Do this wiring check between the slat Primary Low Speed solenoid and FSEU 2:
 - (a) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003B at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

EFFECTIVITY
ARO ALL

27-82 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.50
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

DM27002AC

pin F3

DV27003B

pin 12

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27003B.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27003B to the slat primary control valve, V27003.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-82 TASK 841

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.51
Sep 05/2017



777-200/300
FAULT ISOLATION MANUAL



OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— END OF TASK —————

842. Slats Shutoff Solenoid Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25452.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

EFFECTIVITY
ARO ALL

27-82 TASKS 841-842

D633W103-ARO

Page 298.52
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (4) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- (5) Disconnect electrical connector DV27003A from the slat primary control valve V27003 in the left wheel well.
- (6) Do this wiring check of the Primary Shutoff Solenoid on the slat primary control valve, V27003:
- (a) Do a check of the resistance between pins 12 and 14 of connector DV27003A on the slat primary control valve V27003 in the left wheel well (WDM 27-81-16):
- (b) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then do these steps:

- 1) Replace the Primary Shutoff solenoid on the slat primary control valve V27003.

These are the tasks:

Primary Control Valve Solenoid Removal, AMM TASK 27-81-05-000-802,

Primary Control Valve Solenoid Installation, AMM TASK 27-81-05-400-802.

- 2) Do a check of the resistance between pins 12 and 14 of connector DV27003A on the slat primary control valve, V27003 again (WDM 27-81-16).

NOTE: This does a check of the internal wiring on the primary control valve, V27003.

- a) If the resistance between the pins is not in the limit of 56.5 ± 5.0 ohms (for the 391 series solenoids) or 77 ± 7 ohms (for the 883 series solenoids), then replace the slat primary control valve, V27003.

These are the tasks:

Slat Primary Control Valve Removal, AMM TASK 27-81-05-000-801,

Slat Primary Control Valve Installation, AMM TASK 27-81-05-400-801.

- b) If the resistance between the pins is in the limit, then continue.

- 3) Connect electrical connector DV27003A to the slat primary control valve V27003 in the left wheel well.

- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.

EFFECTIVITY
ARO ALL

27-82 TASK 842

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.53
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (7) Do this wiring check between the slat primary control valve, V27003 and the P210 panel:
 - (a) Do a wiring check between these pins on connector D21026P at the P210 right power management panel and connector DV27003A at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

D21026P	DV27003A
pin 14	pin 14

- (b) If there is a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Connect electrical connector DV27003A to the slat primary control valve V27003 in the left wheel well.
 - 3) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (8) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (9) Remove FSEU 2, M27002 from the E4-1 shelf.
- (10) Do this wiring check between the slat Primary Shutoff solenoid and FSEU 2:
 - (a) Do a wiring check between these pins on connector DM27002AC at the E4-1 shelf and connector DV27003A at the slat primary control valve, V27003 in the left wheel well (WDM 27-81-16):

DM27002AC	DV27003A
pin D5	pin 12

- (b) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.

EFFECTIVITY
ARO ALL

27-82 TASK 842

D633W103-ARO

Page 298.54
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- 2) Re-install FSEU 2, M27002.
- 3) Re-connect connector DV27003A.
- 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	12	C27606	SLATS PRI DR CTRL 1

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27003A to the slat primary control valve, V27003.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
G	12	C27606	SLATS PRI DR CTRL 1

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.



WARNING

OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

————— END OF TASK —————

843. Slats Extend Relay Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25462.

EFFECTIVITY
ARO ALL

27-82 TASKS 842-843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.55
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.
- (2) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (3) Replace the Slats Extend Relay, K27003 on the P210 power management panel (WDM 27-81-18).
- (4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-82 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.56
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO ALL

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check between the Slats Extend Relay and FSEU 2:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (b) Remove the Slats Extend Relay, K27003 from the P210 panel.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27003 at the P210 panel (WDM 27-81-17):

DM27002AA	DK27003
pin E2	pin X2

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-install the Slats Extend Relay, K27003.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-82 TASK 843

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.57
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO 011-999 (Continued)

(Continued)

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - f) If you do not find a problem with the wiring, then continue.
- (7) Do a wiring check between the Slat Extend Relay, K27003 and the Slat Limit Switch, S27005. Repair any damaged wiring found and replace the Slat Limit Switch, S27005, as necessary WDM 27-81-17.
- (8) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (9) Re-install the Slats Extend Relay, K27003 on the P210 panel (WDM 27-81-18).
- (10) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (11) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

844. Slats Retract Relay Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25472.

EFFECTIVITY
ARO ALL

27-82 TASKS 843-844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.58
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.
- (2) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (3) Replace the Slats Retract Relay, K27005 on the P210 power management panel (WDM 27-81-18).
- (4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-82 TASK 844

D633W103-ARO

Page 298.59
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO ALL

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check between the Slats Retract Relay and FSEU 2:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

ARO 001-010

B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (b) Remove the Slats Retract Relay, K27005 from the P210 panel.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27005 at the P210 panel (WDM 27-81-17):

DM27002AA

pin G2

DK27005

pin X2

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-install the Slats Retract Relay, K27005.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>

ARO 011-999

B	1	C27300	SLATS ELEC MOT PWR

EFFECTIVITY
ARO ALL

27-82 TASK 844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.60
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

ARO 011-999 (Continued)

(Continued)

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- f) If you do not find a problem with the wiring, then continue.
- (7) Do a wiring check between the Slat Retract Relay, K27005 and the Slat Limit Switch, S27005. Repair any damaged wiring found and replace the Slat Limit Switch, S27005, as necessary WDM 27-81-17.
- These are the tasks:
- Slat Limit Switch Removal, AMM TASK 27-81-32-000-801
- Slat Limit Switch Installation, AMM TASK 27-81-32-400-801
- (8) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (9) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (10) Re-install the Slats Retract Relay, K27005 on the P210 panel (WDM 27-81-18).
- (11) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

Right Power Panel, P200

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
ARO 011-999			
B	1	C27300	SLATS ELEC MOT PWR
ARO 001-010			
B	3	C27300	SLATS ELEC MOT PWR

ARO ALL

- (12) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.

EFFECTIVITY
ARO ALL

27-82 TASK 844

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.61
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

845. Slats Bypass/Clutch Relay Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25482.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.
- (2) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (3) Replace the Slats Bypass/Clutch Relay, K27001 on the P210 power management panel (WDM 27-81-17).
- (4) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (6) Do this wiring check between the Slats Bypass/Clutch Relay and FSEU 2:

EFFECTIVITY
ARO ALL

27-82 TASKS 844-845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.62
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (b) Remove the Slats Bypass/Clutch Relay, K27001 from the P210 panel.
(c) Remove FSEU 2, M27002 from the E4-1 shelf.
(d) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DK27001 at the P210 panel (WDM 27-81-17):

DM27002AA	DK27001
pin G5	pin X2

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-install the Slats Bypass/Clutch Relay, K27001.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (7) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (8) Re-install the Slats Bypass/Clutch Relay, K27001 on the P210 panel (WDM 27-81-17).
- (9) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	8	C27630	SLATS ELEC CTRL RLY PWR

- (10) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-82 TASK 845

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.63
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

846. Autoslat Priority Valve Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25562.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- (a) If the circuit breaker was not closed, do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, or if the circuit breaker was closed, continue.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801.



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- (5) Disconnect electrical connector DV27105 from the autoslat priority valve, V27105 in the right wheel well.
- (6) Do this wiring check of the autoslat priority valve, V27105:
 - (a) Do a continuity check between pins 1 and 2 of connector DV27105 on the autoslat priority valve V27105 in the right wheel well (WDM 27-81-19):

EFFECTIVITY
ARO ALL

27-82 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.64
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

(b) If there is no continuity between the pins, do these steps:

- 1) Replace the autoslat priority valve, V27105.

These are the tasks:

Autoslat Priority Valve - Main Landing Gear - Removal, AMM
TASK 27-81-06-000-801,

Autoslat Priority Valve - Main Landing Gear - Installation, AMM
TASK 27-81-06-400-801.

- 2) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- 3) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

(c) If you do not find a problem with the wiring, then continue.

(7) Do this wiring check between the autoslat priority valve, V27105 and the P210 panel:

- (a) Do a wiring check between these pins on connector D21026P at the P210 power management panel and connector DV27105 at the autoslat priority valve, V27105 in the right wheel well (WDM 27-81-16), (WDM 27-81-19):

D21026P	DV27105
pin 14	pin 1

(b) If there is a problem with the wiring, do these steps:

- 1) Repair the wiring.
- 2) Connect electrical connector DV27105 to the autoslat priority valve, V27105 in the right wheel well.
- 3) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C27607	SLATS PRI DR CTRL 2

- 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.

- a) If the maintenance message does not show on the ground test display, then you corrected the fault.

(c) If you do not find a problem with the wiring, then continue.

(8) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-82 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.65
Sep 05/2017



**777-200/300
FAULT ISOLATION MANUAL**

- (9) Remove FSEU 2, M27002 from the E4-1 shelf.
- (10) Do this wiring check between the autoslat priority valve and FSEU 2, M27002:
- (a) Do a wiring check between these pins on connector DM27002AA at the E4-1 shelf and connector DV27105 at the autoslat priority valve, V27105 in the right wheel well (WDM 27-81-19):

DM27002AA	DV27105
pin E1	pin 2

- (b) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DV27105.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

- 5) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
 - 6) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (11) Install a new FSEU 2, M27002. To install it, do this task: Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (12) Re-connect connector DV27105 to the autoslat priority valve, V27105.
- (13) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2
K	5	C27607	SLATS PRI DR CTRL 2

- (14) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

 WARNING	OBEY THE REMOVAL PROCEDURE FOR THE DOOR GROUND SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (15) Do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-82 TASK 846

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 298.66
Sep 05/2017



777-200/300 FAULT ISOLATION MANUAL

801. Slat Skew Sensor 2A Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21091.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat skew sensor S27009 on slat No. 2.
These are the tasks:
Outboard Slat Skew Sensor Removal, AMM TASK 27-89-11-000-801,
Outboard Slat Skew Sensor Installation, AMM TASK 27-89-11-400-801.
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 1, M27001.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.
 - (a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do a wiring check between FSEU 1, M27001 and the outboard slat skew sensor S27009:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect connector DS27009 from the outboard slat skew sensor S27009.

EFFECTIVITY
ARO ALL

27-89 TASK 801



777-200/300 FAULT ISOLATION MANUAL

- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27009 at the outboard slat skew sensor, S27009 (WDM 27-89-11):

DM27001AA	DS27009
pin B7	pin 1
pin B8	pin 2

- (e) If you find a problem with the wiring, repair the wiring:
- (f) Re-install FSEU 1, M27001.
- (g) Re-connect connector DS27009.
- (h) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

802. Slat Skew Sensor 13A Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21071.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat skew sensor S27010 on slat No. 13.

These are the tasks:

Outboard Slat Skew Sensor Removal, AMM TASK 27-89-11-000-801,

Outboard Slat Skew Sensor Installation, AMM TASK 27-89-11-400-801.

EFFECTIVITY
ARO ALL

27-89 TASKS 801-802

D633W103-ARO

Page 202
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do a wiring check between FSEU 1, M27001 and the outboard slat skew sensor S27010:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect connector DS27010 from the outboard slat skew sensor S27010.
 - (c) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27010 at the outboard slat skew sensor, S27010 (WDM 27-89-11):

DM27001AA	DS27010
pin A5	pin 1
pin A6	pin 2

- (e) If you find a problem with the wiring, repair the wiring:
 - (f) Re-install FSEU 1, M27001.
 - (g) Re-connect connector DS27010.
 - (h) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

EFFECTIVITY
ARO ALL

27-89 TASK 802

D633W103-ARO

Page 203
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

803. Slat No. 7 Skew Sensors Inboard and Outboard A Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21101.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Find which slat skew sensor S27013 or S27017 does not agree with the slat skew sensors for FSEU 2.
 - (a) Look at the 27-FLAP/SLAT maintenance page on the EICAS.
 - (b) If SLAT 7 - OTBD 1 does not agree with the SLAT 7 - OTBD 2 and - INBD 2, then slat skew sensor S27013 does not agree.
 - (c) If SLAT 7 - INBD 1 does not agree with the SLAT 7 - OTBD 2 and - INBD 2, then slat skew sensor S27017 does not agree.
- (2) If slat skew sensor S27013 does not agree, do these steps:
 - (a) Replace the slat skew sensor S27013 on the outboard auxiliary track in slat No. 7.

These are the tasks:

Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801,
Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801.
 - (b) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
 - (c) Replace FSEU 1, M27001.

These are the tasks:

EFFECTIVITY
ARO ALL

27-89 TASKS 802-803

D633W103-ARO

Page 204
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (d) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (e) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (f) Disconnect connector DS27013 from the inboard slat skew sensor S27013.
- (g) Remove FSEU 1, M27001 from the E1-6 shelf.
- (h) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27013 at the inboard slat skew sensor, S27013 (WDM 27-89-11):

DM27001AA	DS27013
pin C5	pin 1
pin C6	pin 2

- (i) If you find a problem with the wiring, then repair the wiring.
 - (j) Re-install FSEU 1, M27001.
 - (k) Re-connect connector DS27013.
- (3) If slat skew sensor S27017 does not agree, do these steps:
- (a) Replace the slat skew sensor S27017 on the inboard auxiliary track in slat No. 7.
These are the tasks:
Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801,
Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801.
 - (b) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
 - (c) Replace FSEU 1, M27001.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-89 TASK 803

D633W103-ARO

Page 205
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

- (d) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (e) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (f) Disconnect connector DS27017 from the inboard slat skew sensor S27017.
- (g) Remove FSEU 1, M27001 from the E1-6 shelf.
- (h) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27017 at the inboard slat skew sensor, S27017 (WDM 27-89-11):

<u>DM27001AA</u>	<u>DS27017</u>
pin C7	pin 1
pin C8	pin 2

- (i) If you find a problem with the wiring, repair the wiring.
 - (j) Re-install FSEU 1, M27001.
 - (k) Re-connect connector DS27017.
- (4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (5) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

804. Slat No. 8 Skew Sensors Inboard and Outboard A Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21131.

EFFECTIVITY
ARO ALL

27-89 TASKS 803-804

D633W103-ARO

Page 206
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Find which slat skew sensor S27014 or S27018 does not agree with the slat skew sensors for FSEU 2.
 - (a) Look at the 27-FLAP/SLAT maintenance page on the EICAS.
 - (b) If SLAT 8 - OTBD 1 does not agree with the SLAT 8 - OTBD 2 and - INBD 2, then slat skew sensor S27014 does not agree.
 - (c) If SLAT 8 - INBD 1 does not agree with the SLAT 8 - OTBD 2 and - INBD 2, then slat skew sensor S27018 does not agree.
- (2) If slat skew sensor S27014 does not agree, do these steps:
 - (a) Replace the slat skew sensor S27014 on the outboard auxiliary track in slat No. 8.

These are the tasks:

Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801,
Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801.
 - (b) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
 - (c) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
 - (d) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

 - 1) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.



**777-200/300
FAULT ISOLATION MANUAL**

- (e) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (f) Disconnect connector DS27014 from the inboard slat skew sensor S27014.
(g) Remove FSEU 1, M27001 from the E1-6 shelf.
(h) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27014 at the inboard slat skew sensor, S27014 (WDM 27-89-11):

DM27001AA		DS27014	
pin A7	.....	pin 1	
pin A8	.....	pin 2	

- (i) If you find a problem with the wiring, repair the wiring.
(j) Re-install FSEU 1, M27001.
(k) Re-connect connector DS27014.
(3) If slat skew sensor S27018 does not agree, do these steps:

- (a) Replace the slat skew sensor S27018 on the inboard auxiliary track in slat No. 8.

These are the tasks:

Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801,

Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801.

- (b) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.

- 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- 2) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.

- (c) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (d) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
- 2) If the MAT shows ACTIVE for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-89 TASK 804

D633W103-ARO

Page 208
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

- (e) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (f) Disconnect connector DS27018 from the inboard slat skew sensor S27018.
- (g) Remove FSEU 1, M27001 from the E1-6 shelf.
- (h) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27018 at the inboard slat skew sensor, S27018 (WDM 27-89-11):

DM27001AA		DS27018	
pin B5	.....	pin 1	
pin B6	.....	pin 2	

- (i) If you find a problem with the wiring, repair the wiring.
- (j) Re-install FSEU 1, M27001.
- (k) Re-connect connector DS27018.
- (4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (5) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

———— **END OF TASK** ————

805. Slat Skew Sensor 7 Inboard A Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21111.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-89 TASKS 804-805

D633W103-ARO

Page 209
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the slat skew sensor S27017 on the inboard auxiliary track in slat No. 7.

These are the tasks:

Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801,

Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801.

- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.

(a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

(b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.

- (3) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

(a) If the maintenance message does not show on the MAT, then you corrected the fault.

(b) If the MAT shows ACTIVE for the maintenance message, then continue.

- (5) Do a wiring check between FSEU 1, M27001 and the inboard slat skew sensor, S27017:

(a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

(b) Disconnect connector DS27017 from the inboard slat skew sensor S27017.

(c) Remove FSEU 1, M27001 from the E1-6 shelf.

(d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27017 at the inboard slat skew sensor, S27017 (WDM 27-89-11):

DM27001AA	DS27017
pin C7	pin 1
pin C8	pin 2

(e) If you find a problem with the wiring, repair the wiring.

(f) Re-install FSEU 1, M27001.

(g) Re-connect connector DS27017.

EFFECTIVITY
ARO ALL

27-89 TASK 805

D633W103-ARO

Page 210
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

- (h) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

— END OF TASK —

806. Slat Skew Sensor 7 Outboard A Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21121.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat skew sensor S27013 on the outboard auxiliary track in slat No. 7.
- These are the tasks:
- Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801,
Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801.
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 1, M27001.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-89 TASKS 805-806

D633W103-ARO

Page 211
Jan 05/2013



777-200/300
FAULT ISOLATION MANUAL

- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
(b) If the MAT shows ACTIVE for the maintenance message, then continue.
(5) Do a wiring check between FSEU 1, M27001 and the inboard slat skew sensor, S27013:
(a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect connector DS27013 from the inboard slat skew sensor S27013.
(c) Remove FSEU 1, M27001 from the E1-6 shelf.
(d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27013 at the inboard slat skew sensor, S27013 (WDM 27-89-11):

DM27001AA	DS27013
pin C5	pin 1
pin C6	pin 2

- (e) If you find a problem with the wiring, repair the wiring.
(f) Re-install FSEU 1, M27001.
(g) Re-connect connector DS27013.
(h) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

807. Slat Skew Sensor 8 Inboard A Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21141.

EFFECTIVITY
ARO ALL

27-89 TASKS 806-807

D633W103-ARO

Page 212
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat skew sensor S27018 on the inboard auxiliary track in slat No. 8.

These are the tasks:

Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801,
Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801.
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do a wiring check between FSEU 1, M27001 and the inboard slat skew sensor, S27018:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect connector DS27018 from the inboard slat skew sensor S27018.
 - (c) Remove FSEU 1, M27001 from the E1-6 shelf.
 - (d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27018 at the inboard slat skew sensor, S27018 (WDM 27-89-11):

EFFECTIVITY
ARO ALL

27-89 TASK 807

D633W103-ARO

Page 213
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

DM27001AA

pin B5 pin 1
pin B6 pin 2

DS27018

- (e) If you find a problem with the wiring, repair the wiring.
- (f) Re-install FSEU 1, M27001.
- (g) Re-connect connector DS27018.
- (h) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

808. Slat Skew Sensor 8 Outboard A Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21151.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat skew sensor S27014 on the outboard auxiliary track in slat No. 8.
These are the tasks:
Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801,
Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801.
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-89 TASKS 807-808

D633W103-ARO

Page 214
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do a wiring check between FSEU 1, M27001 and the inboard slat skew sensor, S27014:
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect connector DS27014 from the inboard slat skew sensor S27014.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27014 at the inboard slat skew sensor, S27014 (WDM 27-89-11):

DM27001AA		DS27014
pin A7	.....	pin 1
pin A8	.....	pin 2

- (e) If you find a problem with the wiring, repair the wiring.
- (f) Re-install FSEU 1, M27001.
- (g) Re-connect connector DS27014.
- (h) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

EFFECTIVITY
ARO ALL

27-89 TASK 808

D633W103-ARO

Page 215
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

- (j) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

809. Slat No. 2 Skew Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25331.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Open this access panel to get access to the slat skew mechanism in slat No. 2:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------------|
| 526CB | Slat No. 2 Cove Access Panel |
- (2) Measure the clearance between the slat skew sensor, S27009 and the target on the outboard slat skew mechanism.
- (a) If the clearance between the slat skew target and sensor is more than 1.35 inches, then do these steps:
- 1) Look at the outboard slats on the left wing to determine if a slat has a skew.
 - 2) If the outboard slats have a skew, then repair the slat drive system.
 - 3) If the slats do not have a skew, then, do this task: Outboard Slat Skew Cable Adjustment, AMM TASK 27-89-13-820-801.
- (b) If the clearance between the slat skew target and sensor is not more than 1.35 inches, then continue.
- (3) Replace the slat skew sensor S27009 on slat No. 2.
- These are the tasks:
- Outboard Slat Skew Sensor Removal, AMM TASK 27-89-11-000-801,
Outboard Slat Skew Sensor Installation, AMM TASK 27-89-11-400-801.
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (5) Replace FSEU 1, M27001.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (6) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.

EFFECTIVITY
ARO ALL

27-89 TASKS 808-809

D633W103-ARO

Page 216
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (7) Do this wiring check between the outboard slat skew sensor, S27009 and FSEU 1, M27001:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect connector DS27009 from the outboard slat skew sensor S27009.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27009 at the outboard slat skew sensor, S27009 (WDM 27-89-11):

DM27001AA	DS27009
pin B7	pin 1
pin B8	pin 2

- (e) If you find a problem with the wiring, repair the wiring:
- (f) Re-install FSEU 1, M27001.
- (g) Re-connect connector DS27009.
- (h) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (i) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (8) Close this access panel in slat No. 2:

<u>Number</u>	<u>Name/Location</u>
526CB	Slat No. 2 Cove Access Panel

————— **END OF TASK** —————

810. Slat No. 13 Skew Problems FSEU 1 - Fault Isolation

A. **Maintenance Messages**

- (1) This task is for maintenance message: 27-21061.

EFFECTIVITY
ARO ALL

27-89 TASKS 809-810

D633W103-ARO

Page 217
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Open this access panel to get access to the slat skew mechanism in slat No. 13:

<u>Number</u>	<u>Name/Location</u>
626CB	Slat No. 13 Cove Access Panel
- (2) Measure the clearance between the slat skew sensor, S27010 and the target on the outboard slat skew mechanism.
 - (a) If the clearance between the slat skew target and the sensor is more than 1.35 inches, then do these steps:
 - 1) Look at the outboard slats on the right wing to determine if a slat has a skew.
 - 2) If the outboard slats have a skew, then repair the slat drive system.
 - 3) If the slats do not have a skew, then, do this task: Outboard Slat Skew Cable Adjustment, AMM TASK 27-89-13-820-801.
 - 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the clearance between the slat skew target and sensor is not more than 1.35 inches, then continue.
- (3) Replace the slat skew sensor S27010 on slat No. 13.

These are the tasks:

Outboard Slat Skew Sensor Removal, AMM TASK 27-89-11-000-801,
Outboard Slat Skew Sensor Installation, AMM TASK 27-89-11-400-801.
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) Replace FSEU 1, M27001.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

EFFECTIVITY
ARO ALL

27-89 TASK 810

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 218
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (6) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
(b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (7) Do this wiring check between the outboard slat skew sensor, S27010 and FSEU 1, M27001:
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect connector DS27010 from the outboard slat skew sensor S27010.
(c) Remove FSEU 1, M27001 from the E1-6 shelf.
(d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27010 at the outboard slat skew sensor, S27010 (WDM 27-89-11):

DM27001AA	DS27010
pin A5	pin 1
pin A6	pin 2

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 1, M27001.
 - 3) Re-connect connector DS27010.
 - 4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (8) Close this panel in slat No. 13:

<u>Number</u>	<u>Name/Location</u>
626CB	Slat No. 13 Cove Access Panel

EFFECTIVITY
ARO ALL

27-89 TASK 810

D633W103-ARO

Page 219
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

————— END OF TASK —————

811. Slat No. 2 Skew Problems FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21081.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Open this access panel to get access to the slat skew mechanism in slat No. 2:

<u>Number</u>	<u>Name/Location</u>
526CB	Slat No. 2 Cove Access Panel
- (2) Measure the clearance between the slat skew sensor, S27009 and the target on the outboard slat skew mechanism.
 - (a) If the clearance between the slat skew target and the sensor is more than 1.35 inches, then do these steps:
 - 1) Look at the outboard slats on the left wing to determine if a slat has a skew.
 - 2) If the outboard slats have a skew, then repair the slat drive system.
 - 3) If the slats do not have a skew, then, do this task: Outboard Slat Skew Cable Adjustment, AMM TASK 27-89-13-820-801.
 - 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the clearance between the slat skew target and sensor is not more than 1.35 inches, then continue.
- (3) Replace the slat skew sensor S27009 on slat No. 2.

These are the tasks:

Outboard Slat Skew Sensor Removal, AMM TASK 27-89-11-000-801,

Outboard Slat Skew Sensor Installation, AMM TASK 27-89-11-400-801.
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) Replace FSEU 1, M27001.

EFFECTIVITY
ARO ALL

27-89 TASKS 810-811

D633W103-ARO

Page 220
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (6) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
(b) If the MAT shows ACTIVE for the maintenance message, then continue.
(7) Do this wiring check between the outboard slat skew sensor, S27009 and FSEU 1, M27001:
(a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect connector DS27009 from the outboard slat skew sensor S27009.
(c) Remove FSEU 1, M27001 from the E1-6 shelf.
(d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27009 at the outboard slat skew sensor, S27009 (WDM 27-89-11):

DM27001AA	DS27009
pin B7	pin 1
pin B8	pin 2

- (e) If you find a problem with the wiring, do these steps:
1) Repair the wiring.
2) Re-install FSEU 1, M27001.
3) Re-connect connector DS27009.
4) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- 5) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 1 is IN CONTROL. If FSEU 1 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 1 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-89 TASK 811

D633W103-ARO

Page 221
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (8) Close this access panel in slat No. 2:

<u>Number</u>	<u>Name/Location</u>
526CB	Slat No. 2 Cove Access Panel

————— **END OF TASK** —————

812. Slat No. 7 Skew Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25341.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Find which slat skew sensor S27013 or S27017 does not agree with the slat skew sensors for FSEU 2.
- (a) Look at the 27-FLAP/SLAT maintenance page on the EICAS.
- (b) If SLAT 7 - OTBD A does not agree with the SLAT 7 - OTBD B and - INBD B, then slat skew sensor S27013 does not agree.
- (c) If SLAT 7 - INBD A does not agree with the SLAT 7 - OTBD B and - INBD B, then slat skew sensor S27017 does not agree.
- (d) If SLAT 7 - INBD A and OTBD A agree with the SLAT 7 - OTBD B and - INBD B, then it is likely that slat No. 7 has a skew.
- (2) If slat No. 7 has a skew, do these steps:
- (a) Remove these access panels below slat No. 7 to get access to the slat drive system between the rotary actuators:

<u>Number</u>	<u>Name/Location</u>
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

- (b) Find where the drive system is disconnected and repair or replace the applicable parts.
- (c) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.
- (d) Install these access panels below slat No. 7:

<u>Number</u>	<u>Name/Location</u>
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-89 TASKS 811-812

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 222
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

(Continued)

<u>Number</u>	<u>Name/Location</u>
511MB	Inboard Fixed Leading Edge Panel

- (3) If slat skew sensor S27013 does not agree, do these steps:

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
511LB	Inboard Fixed Leading Edge Panel

- (b) Replace the slat skew sensor S27013 on the outboard auxiliary track in slat No. 7. These are the tasks:

- Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
- Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801

- (c) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

- (d) Replace FSEU 1, M27001. These are the tasks:

- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
- Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

- (e) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

- (f) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Disconnect connector DS27013 from the inboard slat skew sensor S27013.
- (h) Remove FSEU 1, M27001 from the E1-6 shelf.
- (i) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27013 at the inboard slat skew sensor, S27013 (WDM 27-89-11):

<u>DM27001AA</u>	<u>DS27013</u>
pin C5	pin 1
pin C6	pin 2

- (j) If you find a problem with the wiring, then repair the wiring.
- (k) Re-install FSEU 1, M27001.
- (l) Re-install connector DS27013.

EFFECTIVITY
ARO ALL

27-89 TASK 812

D633W103-ARO

Page 223
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (m) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
511LB	Inboard Fixed Leading Edge Panel

- (n) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (o) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) If slat skew sensor S27017 does not agree, do these steps:
- (a) Open this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|----------------------------------|
| 511EB | Inboard Fixed Leading Edge Panel |
- (b) Replace the slat skew sensor S27017 on the inboard auxiliary track in slat No. 7. These are the tasks:
- Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
 - Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801
- (c) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (d) Replace FSEU 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (e) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (f) Open these circuit breakers and install safety tags:
- ### Standby Power Management Panel, P310
<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1
- (g) Disconnect connector DS27017 from the inboard slat skew sensor S27017.

EFFECTIVITY
ARO ALL

27-89 TASK 812

D633W103-ARO

Page 224
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (h) Remove FSEU 1, M27001 from the E1-6 shelf.
- (i) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27017 at the inboard slat skew sensor, S27017 (WDM 27-89-11):

DM27001AA	DS27017
pin C7	pin 1
pin C8	pin 2

- (j) If you find a problem with the wiring, then repair the wiring.
- (k) Re-install FSEU 1, M27001.
- (l) Re-connect connector DS27017.
- (m) Install this access panel:

Number	Name/Location
511EB	Inboard Fixed Leading Edge Panel

- (n) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

Row	Col	Number	Name
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (o) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

813. Slat No. 8 Skew Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25351.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
 - (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Find which slat skew sensor S27014 or S27018 does not agree with the slat skew sensors for FSEU 2.
 - (a) Look at the 27-FLAP/SLAT maintenance page on the EICAS.
 - (b) If SLAT 8 - OTBD A does not agree with the SLAT 8 - OTBD B and - INBD B, then slat skew sensor S27014 does not agree.
 - (c) If SLAT 8 - INBD A does not agree with the SLAT 8 - OTBD B and - INBD B, then slat skew sensor S27018 does not agree.

EFFECTIVITY
ARO ALL

27-89 TASKS 812-813

D633W103-ARO

Page 225
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (d) If SLAT 8 - INBD A and OTBD A agree with the SLAT 8 - OTBD B and - INBD B, then it is likely that slat No. 8 has a skew.
- (2) If slat No. 8 has a skew, do these steps:
- (a) Remove these panels below slat No. 8 to get access to the slat drive system between the rotary actuators:

<u>Number</u>	<u>Name/Location</u>
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

- (b) Find where the drive system is disconnected and repair or replace the applicable parts.
- (c) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.
- (d) Install these access panels below slat No. 8:

<u>Number</u>	<u>Name/Location</u>
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

- (3) If slat skew sensor S27014 does not agree, do these steps:

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
611LB	Inboard Fixed Leading Edge Panel

- (b) Replace the slat skew sensor S27014 on the outboard auxiliary track in slat No. 8. These are the tasks:

- Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
- Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801

- (c) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

- (d) Replace FSEU 1, M27001. These are the tasks:

- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
- Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

- (e) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-89 TASK 813

D633W103-ARO

Page 226
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (f) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Disconnect connector DS27014 from the inboard slat skew sensor S27014.
(h) Remove FSEU 1, M27001 from the E1-6 shelf.
(i) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27014 at the inboard slat skew sensor, S27014 (WDM 27-89-11):

<u>DM27001AA</u>	<u>DS27014</u>
pin A7	pin 1
pin B7	pin 2

- (j) If you find a problem with the wiring, then repair the wiring.
(k) Re-install FSEU 1, M27001.
(l) Re-connect connector DS27014.
(m) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
611LB	Inboard Fixed Leading Edge Panel

- (n) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (o) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) If slat skew sensor S27018 does not agree, do these steps:

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel

- (b) Replace the slat skew sensor S27018 on the inboard auxiliary track in slat No. 8. These are the tasks:
- Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
 - Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801
- (c) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.

EFFECTIVITY
ARO ALL

27-89 TASK 813

D633W103-ARO

Page 227
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (d) Replace FSEU 1, M27001. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (e) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (f) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (g) Disconnect connector DS27018 from the inboard slat skew sensor S27018.
- (h) Remove FSEU 1, M27001 from the E1-6 shelf.
- (i) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27018 at the inboard slat skew sensor, S27018 (WDM 27-89-11):

DM27001AA	DS27018
pin B5	pin 1
pin B6	pin 2

- (j) If you find a problem with the wiring, then repair the wiring.
- (k) Re-install FSEU 1, M27001.
- (l) Re-connect connector DS27018.
- (m) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel

- (n) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (o) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-89 TASK 813

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 228
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

814. Slat No. 13 Skew Problems During Test FSEU 1 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25361.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Remove this access panel to get access to the slat skew mechanism in slat No. 13:

<u>Number</u>	<u>Name/Location</u>
626CB	Slat No. 13 Cove Access Panel

- (2) Measure the clearance between the slat skew sensor, S27010 and the target on the outboard slat skew mechanism.
- (a) If the clearance between the slat skew target and sensor is more than 1.35 inches, then do these steps:
- 1) Look at the outboard slats on the right wing to determine if a slat has a skew.
 - 2) If the outboard slats have a skew, then repair the slat drive system.
 - 3) If the slats do not have a skew, then, do this task: Outboard Slat Skew Cable Adjustment, AMM TASK 27-89-13-820-801.
- (b) If the clearance between the slat skew target and sensor is not more than 1.35 inches, then continue.
- (3) Replace the slat skew sensor S27010 on slat No. 13.
- These are the tasks:
- Outboard Slat Skew Sensor Removal, AMM TASK 27-89-11-000-801,
Outboard Slat Skew Sensor Installation, AMM TASK 27-89-11-400-801.
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (5) Replace FSEU 1, M27001.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (6) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-89 TASK 814

D633W103-ARO

Page 229
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message shows on the ground test display, then continue.
- (7) Do this wiring check between the outboard slat skew sensor, S27010 and FSEU 1, M27001:
 - (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (b) Disconnect connector DS27010 from the outboard slat skew sensor S27010.
- (c) Remove FSEU 1, M27001 from the E1-6 shelf.
- (d) Do a wiring check between these pins of connector DM27001AA at the E1-6 shelf and connector DS27010 at the outboard slat skew sensor, S27010 (WDM 27-89-11):

<u>DM27001AA</u>	<u>DS27010</u>
pin A5	pin 1
pin A6	pin 2

- (e) If you find a problem with the wiring, repair the wiring:
- (f) Re-install FSEU 1, M27001.
- (g) Re-connect connector DS27010.
- (h) Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	8	C27513	SNSR EXC 1
D	3	C27601	FSEU 1

- (i) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 1.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (8) Install this access panel in slat No. 13:

<u>Number</u>	<u>Name/Location</u>
626CB	Slat No. 13 Cove Access Panel

————— **END OF TASK** —————

815. Slat Skew Sensor 2B Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21092.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.

EFFECTIVITY
ARO ALL

27-89 TASKS 814-815

D633W103-ARO

Page 230
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat skew sensor S27011 on slat No. 2.
These are the tasks:
Outboard Slat Skew Sensor Removal, AMM TASK 27-89-11-000-801,
Outboard Slat Skew Sensor Installation, AMM TASK 27-89-11-400-801.
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 2, M27002.
These are the tasks:
Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.
NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.
 - (a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do a wiring check between FSEU 2, M27002 and the outboard slat skew sensor S27011:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect connector DS27011 from the outboard slat skew sensor S27011.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27011 at the outboard slat skew sensor, S27011 (WDM 27-89-13):

DM27002AA	DS27011
pin B7	pin 1
pin B8	pin 2

- (e) If you find a problem with the wiring, repair the wiring:

EFFECTIVITY
ARO ALL

27-89 TASK 815

D633W103-ARO

Page 231
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (f) Re-install FSEU 2, M27002.
- (g) Re-connect connector DS27011.
- (h) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

816. Slat Skew Sensor 13B Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21072.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat skew sensor S27012 on slat No. 13.

These are the tasks:

Outboard Slat Skew Sensor Removal, AMM TASK 27-89-11-000-801,
Outboard Slat Skew Sensor Installation, AMM TASK 27-89-11-400-801.
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

EFFECTIVITY
ARO ALL

27-89 TASKS 815-816

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 232
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
(b) If the MAT shows ACTIVE for the maintenance message, then continue.
(5) Do a wiring check between FSEU 2, M27002 and the outboard slat skew sensor S27012:
(a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect connector DS27012 from the outboard slat skew sensor S27012.
(c) Remove FSEU 2, M27002 from the E4-1 shelf.
(d) Do a wiring check between these pins of connector DM27001AA at the E4-1 shelf and connector DS27012 at the outboard slat skew sensor, S27012 (WDM 27-89-13):

DM27002AA		DS27012
pin A5	.....	pin 1
pin A6	.....	pin 2

- (e) If you find a problem with the wiring, repair the wiring:
(f) Re-install FSEU 2, M27002.
(g) Re-connect connector DS27012.
(h) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-89 TASK 816

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 233
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

817. Slat No. 13 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21062.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Remove this access panel to get access to the slat skew mechanism in slat No. 13:

<u>Number</u>	<u>Name/Location</u>
626CB	Slat No. 13 Cove Access Panel
- (2) Measure the clearance between the slat skew sensor, S27012 and the target on the outboard slat skew mechanism.
 - (a) If the clearance between the slat skew target and the sensor is more than 1.35 inches, then do these steps:
 - 1) Look at the outboard slats on the right wing to determine if a slat has a skew.
 - 2) If the outboard slats have a skew, then repair the slat drive system.
 - 3) If the slats do not have a skew, then, do this task: Outboard Slat Skew Cable Adjustment, AMM TASK 27-89-13-820-801.
 - 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the clearance between the slat skew target and sensor is not more than 1.35 inches, then continue.
- (3) Replace the slat skew sensor S27012 on slat No. 13.

These are the tasks:

Outboard Slat Skew Sensor Removal, AMM TASK 27-89-11-000-801,

Outboard Slat Skew Sensor Installation, AMM TASK 27-89-11-400-801.
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) Replace FSEU 2, M27002.

These are the tasks:

EFFECTIVITY
ARO ALL

27-89 TASK 817

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 234
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (6) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
(b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (7) Do this wiring check between the outboard slat skew sensor, S27012 and FSEU 2, M27002:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect connector DS27012 from the outboard slat skew sensor S27012.
(c) Remove FSEU 2, M27002 from the E4-1 shelf.
(d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27012 at the outboard slat skew sensor, S27012 (WDM 27-89-13):

DM27002AA	DS27012
pin A5	pin 1
pin A6	pin 2

- (e) If you find a problem with the wiring, do these steps:
- 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DS27012.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- 5) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-89 TASK 817

D633W103-ARO

Page 235
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (8) Install this access panel in slot No. 13:

<u>Number</u>	<u>Name/Location</u>
626CB	Slat No. 13 Cove Access Panel

————— **END OF TASK** —————

818. Slat No. 2 Skew Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21082.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Remove this access panel to get access to the slat skew mechanism in slat No. 2:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------------|
| 526CB | Slat No. 2 Cove Access Panel |
- (2) Measure the clearance between the slat skew sensor, S27011 and the target on the outboard slat skew mechanism.
- (a) If the clearance between the slat skew target and the sensor is more than 1.35 inches, then do these steps:
- 1) Look at the outboard slats on the left wing to determine if a slat has a skew.
 - 2) If the outboard slats have a skew, then repair the slat drive system.
 - 3) If the slats do not have a skew, then, do this task: Outboard Slat Skew Cable Adjustment, AMM TASK 27-89-13-820-801.
 - 4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the clearance between the slat skew target and sensor is not more than 1.35 inches, then continue.
- (3) Replace the slat skew sensor S27011 on slat No. 2.
- These are the tasks:
- Outboard Slat Skew Sensor Removal, AMM TASK 27-89-11-000-801,
- Outboard Slat Skew Sensor Installation, AMM TASK 27-89-11-400-801.
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.

EFFECTIVITY
ARO ALL

27-89 TASKS 817-818

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 236
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (5) Replace FSEU 2, M27002.
- These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.
- (6) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (7) Do this wiring check between the outboard slat skew sensor, S27011 and FSEU 2, M27002:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect connector DS27011 from the outboard slat skew sensor S27011.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27011 at the outboard slat skew sensor, S27011 (WDM 27-89-13):

DM27002AA	DS27011
pin B7	pin 1
pin B8	pin 2

- (e) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install FSEU 2, M27002.
 - 3) Re-connect connector DS27011.
 - 4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

EFFECTIVITY
ARO ALL

27-89 TASK 818

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 237
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 5) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (8) Install this access panel in slat No. 2:

<u>Number</u>	<u>Name/Location</u>
526CB	Slat No. 2 Cove Access Panel

————— **END OF TASK** —————

819. Slat No. 7 Skew Sensors Inboard and Outboard B Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21102.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Find which slat skew sensor S27015 or S27019 does not agree with the slat skew sensors for FSEU 1.
 - (a) Look at the 27-FLAP/SLAT maintenance page on the EICAS.
 - (b) If SLAT 7 - OTBD 2 does not agree with the SLAT 7 - OTBD 1 and - INBD 1, then slat skew sensor S27015 does not agree.
 - (c) If SLAT 7 - INBD 2 does not agree with the SLAT 7 - OTBD 1 and - INBD 1, then slat skew sensor S27019 does not agree.
- (2) If slat skew sensor S27015 does not agree, do these steps:
 - (a) Replace the slat skew sensor S27015 on the outboard auxiliary track in slat No. 7.

These are the tasks:

Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801,

Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801.
 - (b) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-89 TASKS 818-819

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 238
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (c) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,
Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (d) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (e) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (f) Disconnect connector DS27015 from the inboard slat skew sensor S27015.
- (g) Remove FSEU 2, M27002 from the E4-1 shelf.
- (h) Do a wiring check between these pins of connector DM27001AA at the E4-1 shelf and connector DS27015 at the inboard slat skew sensor, S27015 (WDM 27-89-13):

DM27002AA	DS27015
pin C5	pin 1
pin C6	pin 2

- (i) If you find a problem with the wiring, then repair the wiring.
 - (j) Re-install FSEU 2, M27002.
 - (k) Re-connect connector DS27015.
- (3) If slat skew sensor S27019 does not agree, do these steps:
 - (a) Replace the slat skew sensor S27019 on the inboard auxiliary track in slat No. 7.

These are the tasks:

Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801,
Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801.
 - (b) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-89 TASK 819

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 239
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (c) Replace FSEU 2, M27002.

These are the tasks:

Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801,

Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801.

- (d) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
- 2) If the MAT shows ACTIVE for the maintenance message, then continue.

- (e) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (f) Disconnect connector DS27019 from the inboard slat skew sensor S27019.
- (g) Remove FSEU 2, M27002 from the E4-1 shelf.
- (h) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27019 at the inboard slat skew sensor, S27019 (WDM 27-89-13):

DM27002AA	DS27019
pin C7	pin 1
pin C8	pin 2

- (i) If you find a problem with the wiring, repair the wiring.
 - (j) Re-install FSEU 2, M27002.
 - (k) Re-connect connector DS27019.
- (4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (5) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

27-89 TASK 819

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 240
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

820. Slat No. 8 Skew Sensors Inboard and Outboard B Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21132.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Find which slat skew sensor S27016 or S27020 does not agree with the slat skew sensors for FSEU 1.
 - (a) Look at the 27-FLAP/SLAT maintenance page on the EICAS.
 - (b) If SLAT 8 - OTBD 2 does not agree with the SLAT 8 - OTBD 1 and - INBD 1, then slat skew sensor S27016 does not agree.
 - (c) If SLAT 8 - INBD 2 does not agree with the SLAT 8 - OTBD 1 and - INBD 1, then slat skew sensor S27020 does not agree.
- (2) If slat skew sensor S27016 does not agree, do these steps:
 - (a) Replace the slat skew sensor S27016 on the outboard auxiliary track in slat No. 8. These are the tasks:
 - Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
 - Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801
 - (b) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
 - (c) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
 - (d) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

 - 1) If the maintenance message does not show on the MAT, then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-89 TASK 820

D633W103-ARO

Page 241
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (e) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (f) Disconnect connector DS27016 from the inboard slat skew sensor S27016.
- (g) Remove FSEU 2, M27002 from the E4-1 shelf.
- (h) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27016 at the inboard slat skew sensor, S27016 (WDM 27-89-13):

DM27002AA		DS27016	
pin A7	.....	pin 1	
pin A8	.....	pin 2	

- (i) If you find a problem with the wiring, repair the wiring.
- (j) Re-install FSEU 2, M27002.
- (k) Re-connect connector DS27016.
- (3) If slat skew sensor S27020 does not agree, do these steps:
- (a) Replace the slat skew sensor S27020 on the inboard auxiliary track in slat No. 8. These are the tasks:
- Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
 - Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801
- (b) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- 1) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - 2) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (c) Replace FSEU 2, M27002. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (d) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.
- 2) If the MAT shows ACTIVE for the maintenance message, then continue.

EFFECTIVITY
ARO ALL

27-89 TASK 820

D633W103-ARO

Page 242
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (e) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (f) Disconnect connector DS27020 from the inboard slat skew sensor S27020.
- (g) Remove FSEU 2, M27002 from the E4-1 shelf.
- (h) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27020 at the inboard slat skew sensor, S27020 (WDM 27-89-13):

DM27002AA		DS27020	
pin B5	.....	pin 1	
pin B6	.....	pin 2	

- (i) If you find a problem with the wiring, repair the wiring.
- (j) Re-install FSEU 2, M27002.
- (k) Re-connect connector DS27020.
- (4) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (5) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.

———— **END OF TASK** ————

821. Slat Skew Sensor 7 Inboard B Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21112.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-89 TASKS 820-821

D633W103-ARO

Page 243
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Replace the slat skew sensor S27019 on the inboard auxiliary track in slat No. 7. These are the tasks:
 - Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
 - Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do a wiring check between FSEU 2, M27002 and the inboard slat skew sensor, S27017:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect connector DS27019 from the inboard slat skew sensor S27019.
 - (c) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27019 at the inboard slat skew sensor, S27019 (WDM 27-89-13):

DM27002AA	DS27019
pin C7	pin 1
pin C8	pin 2

- (e) If you find a problem with the wiring, repair the wiring.
 - (f) Re-install FSEU 2, M27002.
 - (g) Re-connect connector DS27019.

EFFECTIVITY
ARO ALL

27-89 TASK 821

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 244
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (h) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

822. Slat Skew Sensor 7 Outboard B Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21122.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat skew sensor S27015 on the outboard auxiliary track in slat No. 7. These are the tasks:
- Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
 - Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 2, M27002. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

EFFECTIVITY
ARO ALL

27-89 TASKS 821-822

D633W103-ARO

Page 245
Sep 05/2016



777-200/300
FAULT ISOLATION MANUAL

- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
(b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do a wiring check between FSEU 2, M27002 and the inboard slat skew sensor, S27015:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect connector DS27015 from the inboard slat skew sensor S27015.
(c) Remove FSEU 2, M27002 from the E4-1 shelf.
(d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27015 at the inboard slat skew sensor, S27015 (WDM 27-89-13):

DM27002AA	DS27015
pin C5	pin 1
pin C6	pin 2

- (e) If you find a problem with the wiring, repair the wiring.
(f) Re-install FSEU 2, M27002.
(g) Re-connect connector DS27015.
(h) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

823. Slat Skew Sensor 8 Inboard B Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21142.

EFFECTIVITY
ARO ALL

27-89 TASKS 822-823

D633W103-ARO

Page 246
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat skew sensor S27020 on the inboard auxiliary track in slat No. 8. These are the tasks:
 - Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
 - Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.
 - (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do a wiring check between FSEU 2, M27002 and the inboard slat skew sensor, S27020:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect connector DS27020 from the inboard slat skew sensor S27020.
 - (c) Remove FSEU 2, M27002 from the E4-1 shelf.
 - (d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27020 at the inboard slat skew sensor, S27020 (WDM 27-89-13):

EFFECTIVITY
ARO ALL

27-89 TASK 823

D633W103-ARO

Page 247
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

DM27002AA

pin B5 pin 1
pin B6 pin 2

DS27020

- (e) If you find a problem with the wiring, repair the wiring.
- (f) Re-install FSEU 2, M27002.
- (g) Re-connect connector DS27020.
- (h) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

Row	Col	Number	Name
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- 1) If the maintenance message does not show on the MAT, then you corrected the fault.

————— **END OF TASK** —————

824. Slat Skew Sensor 8 Outboard B Problems FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-21152.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
 - (b) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the slat skew sensor S27016 on the outboard auxiliary track in slat No. 8. These are the tasks:
 - Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
 - Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801
- (2) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the MAT EXISTING FAULTS display does not show LATCHED for the maintenance message, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-89 TASKS 823-824

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 248
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (b) If the MAT EXISTING FAULTS display shows LATCHED for the maintenance message, then continue.
- (3) Replace FSEU 2, M27002. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (4) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.

- (a) If the maintenance message does not show on the MAT, then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do a wiring check between FSEU 2, M27002 and the inboard slat skew sensor, S27016:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect connector DS27016 from the inboard slat skew sensor S27016.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27016 at the inboard slat skew sensor, S27016 (WDM 27-89-13):

DM27002AA		DS27016
pin A7	.....	pin 1
pin A8	.....	pin 2

- (e) If you find a problem with the wiring, repair the wiring.
- (f) Re-install FSEU 2, M27002.
- (g) Re-connect connector DS27016.
- (h) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (i) Use the primary system to extend or retract the slats to another position. To extend or retract them, do this task: Leading Edge Slat System Operation With Primary Control, AMM TASK 27-81-00-860-803.

NOTE: Use the FLAP/SLAT maintenance page on EICAS to make sure FSEU 2 is IN CONTROL. If FSEU 2 is not IN CONTROL, cycle the ALTN FLAPS ARM switch to get FSEU 2 IN CONTROL.



777-200/300 FAULT ISOLATION MANUAL

- (j) If the maintenance message does not show on the MAT, then you corrected the fault.

————— END OF TASK —————

825. Slat No. 2 Skew Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25332.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Remove this access panel to get access to the slat skew mechanism in slat No. 2:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------------|
| 526CB | Slat No. 2 Cove Access Panel |
- (2) Measure the clearance between the slat skew sensor, S27011 and the target on the outboard slat skew mechanism.
- (a) If the clearance between the slat skew target and sensor is more than 1.35 inches, then do these steps:
- 1) Look at the outboard slats on the left wing to determine if a slat has a skew.
 - 2) If the outboard slats have a skew, then repair the slat drive system.
 - 3) If the slats do not have a skew, then, do this task: Outboard Slat Skew Cable Adjustment, AMM TASK 27-89-13-820-801.
- (b) If the clearance between the slat skew target and sensor is not more than 1.35 inches, then continue.
- (3) Replace the slat skew sensor S27011 on slat No. 2. These are the tasks:
- Outboard Slat Skew Sensor Removal, AMM TASK 27-89-11-000-801
 - Outboard Slat Skew Sensor Installation, AMM TASK 27-89-11-400-801
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (b) If the maintenance message shows on the ground test display, then continue.
- (5) Replace FSEU 2, M27002. These are the tasks:
- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (6) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- (a) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-89 TASKS 824-825

D633W103-ARO

Page 250
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message shows on the ground test display, then continue.
- (7) Do this wiring check between the outboard slat skew sensor, S27009 and FSEU 2, M27002:
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect connector DS27011 from the outboard slat skew sensor S27011.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27011 at the outboard slat skew sensor, S27011 (WDM 27-89-13):

<u>DM27002AA</u>	<u>DS27011</u>
pin B7	pin 1
pin B8	pin 2

- (e) If you find a problem with the wiring, repair the wiring:
- (f) Re-install FSEU 2, M27002.
- (g) Re-connect connector DS27011.
- (h) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (i) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (8) Close this access panel in slat No. 2:

<u>Number</u>	<u>Name/Location</u>
526CB	Slat No. 2 Cove Access Panel

————— **END OF TASK** —————

826. Slat No. 7 Skew Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25342.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.

EFFECTIVITY
ARO ALL

27-89 TASKS 825-826

D633W103-ARO

Page 251
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Find which slat skew sensor S27015 or S27019 does not agree with the slat skew sensors for FSEU 1.
- (a) Look at the 27-FLAP/SLAT maintenance page on the EICAS.
 - (b) If SLAT 7 - OTBD B does not agree with the SLAT 7 - OTBD A and - INBD A, then slat skew sensor S27015 does not agree.
 - (c) If SLAT 7 - INBD B does not agree with the SLAT 7 - OTBD A and - INBD A, then slat skew sensor S27019 does not agree.
 - (d) If SLAT 7 - INBD B and OTBD B agree with the SLAT 7 - OTBD A and - INBD A, then it is likely that slat No. 7 has a skew.
- (2) If slat No. 7 has a skew, do these steps:

- (a) Remove these access panels below slat No. 7 to get access to the slat drive system between the rotary actuators:

<u>Number</u>	<u>Name/Location</u>
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

- (b) Find where the drive system is disconnected and repair or replace the applicable parts.
- (c) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.
- (d) Install these access panels below slat No. 7:

<u>Number</u>	<u>Name/Location</u>
511CB	Inboard Fixed Leading Edge Panel
511EB	Inboard Fixed Leading Edge Panel
511GB	Inboard Fixed Leading Edge Panel
511LB	Inboard Fixed Leading Edge Panel
511MB	Inboard Fixed Leading Edge Panel

- (3) If slat skew sensor S27015 does not agree, do these steps:

- (a) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
511LB	Inboard Fixed Leading Edge Panel

- (b) Replace the slat skew sensor S27015 on the outboard auxiliary track in slat No. 7. These are the tasks:
 - Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
 - Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801
- (c) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

EFFECTIVITY
ARO ALL

27-89 TASK 826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 252
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- 2) If the maintenance message shows on the ground test display, then continue.
- (d) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (e) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (f) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (g) Disconnect connector DS27014 from the inboard slat skew sensor S27014.
- (h) Remove FSEU 2, M27002 from the E4-1 shelf.
- (i) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27015 at the inboard slat skew sensor, S27015 (WDM 27-89-13):

<u>DM27002AA</u>	<u>DS27015</u>
pin C5	pin 1
pin C6	pin 2

- (j) If you find a problem with the wiring, then repair the wiring.
- (k) Re-install FSEU 2, M27002.
- (l) Re-connector connector DS27015.
- (m) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
511LB	Inboard Fixed Leading Edge Panel

- (n) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (o) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) If slat skew sensor S27019 does not agree, do these steps:

EFFECTIVITY
ARO ALL

27-89 TASK 826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 253
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel

- (b) Replace the slat skew sensor S27019 on the inboard auxiliary track in slat No. 7. These are the tasks:

- Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
- Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801

- (c) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

- (d) Replace FSEU 2, M27002. These are the tasks:

- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
- Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

- (e) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

- (f) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (g) Disconnect connector DS27019 from the inboard slat skew sensor S27019.

- (h) Remove FSEU 2, M27002 from the E4-1 shelf.

- (i) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27019 at the inboard slat skew sensor, S27019 (WDM 27-89-13):

<u>DM27002AA</u>	<u>DS27019</u>
pin C7	pin 1
pin C8	pin 2

- (j) If you find a problem with the wiring, then repair the wiring.

- (k) Re-install FSEU 2, M27002.

- (l) Re-connect connector DS27019.

- (m) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
511EB	Inboard Fixed Leading Edge Panel

EFFECTIVITY
ARO ALL

27-89 TASK 826

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 254
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (n) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (o) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

———— **END OF TASK** ————

827. Slat No. 8 Skew Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25352.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Find which slat skew sensor S27016 or S27020 does not agree with the slat skew sensors for FSEU 1.
- (a) Look at the 27-FLAP/SLAT maintenance page on the EICAS.
- (b) If SLAT 8 - OTBD B does not agree with the SLAT 8 - OTBD A and - INBD A, then slat skew sensor S27016 does not agree.
- (c) If SLAT 8 - INBD B does not agree with the SLAT 8 - OTBD A and - INBD A, then slat skew sensor S27020 does not agree.
- (d) If SLAT 8 - INBD B and OTBD B agree with the SLAT 8 - OTBD A and - INBD A, then it is likely that slat No. 8 has a skew.
- (2) If slat No. 8 has a skew, do these steps:

- (a) Remove these access panels below slat No. 8 to get access to the slat drive system between the rotary actuators:

<u>Number</u>	<u>Name/Location</u>
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

- (b) Find where the drive system is disconnected and repair or replace the applicable parts.
- (c) Do this task: Leading Edge Slat Drive System Adjustment, AMM TASK 27-81-00-820-801.

EFFECTIVITY
ARO ALL

27-89 TASKS 826-827

D633W103-ARO

Page 255
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (d) Install these access panels below slat No. 8:

<u>Number</u>	<u>Name/Location</u>
611CB	Inboard Fixed Leading Edge Panel
611EB	Inboard Fixed Leading Edge Panel
611GB	Inboard Fixed Leading Edge Panel
611LB	Inboard Fixed Leading Edge Panel
611MB	Inboard Fixed Leading Edge Panel

- (3) If slat skew sensor S27016 does not agree, do these steps:

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
611LB	Inboard Fixed Leading Edge Panel

- (b) Replace the slat skew sensor S27016 on the outboard auxiliary track in slat No. 8. These are the tasks:

- Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
- Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801

- (c) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

- (d) Replace FSEU 2, M27002. These are the tasks:

- Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
- Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801

- (e) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.

- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- 2) If the maintenance message shows on the ground test display, then continue.

- (f) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (g) Disconnect connector DS27016 from the inboard slat skew sensor S27016.
- (h) Remove FSEU 2, M27002 from the E4-1 shelf.
- (i) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27016 at the inboard slat skew sensor, S27016 (WDM 27-89-13):

DM27002AA	DS27016
pin A7	pin 1
pin B7	pin 2

EFFECTIVITY
ARO ALL

27-89 TASK 827

D633W103-ARO

ECCN 9E991 BOEING PROPRIETARY - Copyright © Unpublished Work - See title page for details

Page 256
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

- (j) If you find a problem with the wiring, then repair the wiring.
- (k) Re-install FSEU 2, M27002.
- (l) Re-connect connector DS27016.

- (m) Close this access panel:

<u>Number</u>	<u>Name/Location</u>

611LB	Inboard Fixed Leading Edge Panel

- (n) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (o) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
- (4) If slat skew sensor S27020 does not agree, do these steps:
 - (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
611EB	Inboard Fixed Leading Edge Panel
 - (b) Replace the slat skew sensor S27020 on the inboard auxiliary track in slat No. 8. These are the tasks:
 - Inboard Slat Skew Sensor Removal, AMM TASK 27-89-01-000-801
 - Inboard Slat Skew Sensor Installation, AMM TASK 27-89-01-400-801
 - (c) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.
 - (d) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
 - (e) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - 2) If the maintenance message shows on the ground test display, then continue.

EFFECTIVITY
ARO ALL

27-89 TASK 827

D633W103-ARO

Page 257
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

- (f) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (g) Disconnect connector DS27020 from the inboard slat skew sensor S27020.
- (h) Remove FSEU 2, M27002 from the E4-1 shelf.
- (i) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27020 at the inboard slat skew sensor, S27020 (WDM 27-89-13):

<u>DM27002AA</u>	<u>DS27020</u>
pin B5	pin 1
pin B6	pin 2

- (j) If you find a problem with the wiring, then repair the wiring.
- (k) Re-install FSEU 2, M27002.
- (l) Re-connect connector DS27020.

<u>Number</u>	<u>Name/Location</u>

611EB	Inboard Fixed Leading Edge Panel

- (m) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (n) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- 1) If the maintenance message does not show on the ground test display, then you corrected the fault.

————— END OF TASK —————

828. Slat No. 13 Skew Problems During Test FSEU 2 - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 27-25362.

B. Initial Evaluation

- (1) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
- (a) If the maintenance message shows on the ground test display, then do the Fault Isolation Procedure below.
- (b) If the maintenance message does not show on the ground test display, then there was an intermittent fault.

EFFECTIVITY
ARO ALL

27-89 TASKS 827-828

D633W103-ARO

Page 258
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

C. Fault Isolation Procedure

- (1) Open this access panel to get access to the slat skew mechanism in slat No. 13:

<u>Number</u>	<u>Name/Location</u>
626CB	Slat No. 13 Cove Access Panel
- (2) Measure the clearance between the slat skew sensor, S27012 and the target on the outboard slat skew mechanism.
 - (a) If the clearance between the slat skew target and sensor is more than 1.35 inches, then do these steps:
 - 1) Look at the outboard slats on the right wing to determine if a slat has a skew.
 - 2) If the outboard slats have a skew, then repair the slat drive system.
 - 3) If the slats do not have a skew, then, do this task: Outboard Slat Skew Cable Adjustment, AMM TASK 27-89-13-820-801.
 - (b) If the clearance between the slat skew target and sensor is not more than 1.35 inches, then continue.
- (3) Replace the slat skew sensor S27012 on slat No. 13. These are the tasks:
 - Outboard Slat Skew Sensor Removal, AMM TASK 27-89-11-000-801
 - Outboard Slat Skew Sensor Installation, AMM TASK 27-89-11-400-801
- (4) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (5) Replace FSEU 2, M27002. These are the tasks:
 - Flap/Slat Electronics Unit (FSEU) Removal, AMM TASK 27-51-01-000-801
 - Flap/Slat Electronics Unit (FSEU) Installation, AMM TASK 27-51-01-400-801
- (6) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - (a) If the maintenance message does not show on the ground test display, then you corrected the fault.
 - (b) If the maintenance message shows on the ground test display, then continue.
- (7) Do this wiring check between the outboard slat skew sensor, S27012 and FSEU 2, M27002:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (b) Disconnect connector DS27012 from the outboard slat skew sensor S27012.
- (c) Remove FSEU 2, M27002 from the E4-1 shelf.
- (d) Do a wiring check between these pins of connector DM27002AA at the E4-1 shelf and connector DS27012 at the outboard slat skew sensor, S27012 (WDM 27-89-13):

EFFECTIVITY
ARO ALL

27-89 TASK 828

D633W103-ARO

Page 259
Sep 05/2016



**777-200/300
FAULT ISOLATION MANUAL**

DM27002AA	DS27012
pin A5	pin 1
pin A6	pin 2

- (e) If you find a problem with the wiring, repair the wiring:
- (f) Re-install FSEU 2, M27002.
- (g) Re-connect connector DS27012.
- (h) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	21	C27514	SNSR EXC 2
K	4	C27602	FSEU 2

- (i) Do this ground test on the MAT: 27 High Lift System, LRU Replacement Test, Inboard Slat Skew Test-FSEU 2.
 - 1) If the maintenance message does not show on the ground test display, then you corrected the fault.
- (8) Install this access panel in slat No. 13:

<u>Number</u>	<u>Name/Location</u>
626CB	Slat No. 13 Cove Access Panel

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-89 TASK 828

D633W103-ARO

Page 260
Sep 05/2016



777-200/300 FAULT ISOLATION MANUAL

801. Procedure To Be Determined - Fault Isolation

A. Fault Isolation Procedure

- (1) At this time the FIM does not have a procedure for this fault. The FIM will contain a procedure for this fault in the future.

————— **END OF TASK** —————

802. Observed Fault with Correlated Maintenance Messages - Fault Isolation

A. Initial Evaluation

- (1) Find the fault code to the right of the fault description in the Observed Faults List (at the front of the FIM).
 - (a) The first two digits of the fault code are the FIM chapter that you need. Go to the Fault Code Index in that chapter and find the fault code.
 - (b) Find the maintenance message to the right of the fault code.
 - (c) Find the task number on the same line as the maintenance message number.
 - (d) Go to the task in the FIM and do the steps in the task.

————— **END OF TASK** —————

803. Intermittent Fault for Primary Flight Controls - Fault Isolation

A. Initial Evaluation

- (1) If the MAT shows ACTIVE or LATCHED for the maintenance message, the fault is not intermittent. Do the fault isolation task for the maintenance message.
- (2) If the MAT does not show ACTIVE or LATCHED for the maintenance message, do the Fault Isolation Procedure below.

B. Fault Isolation Procedure

- (1) Review the maintenance history of the airplane for prior actions related to the intermittent fault.
- (2) Make sure to keep a careful record of all maintenance actions performed.

NOTE: Troubleshooting intermittent faults is not like other fault isolation tasks. It requires a more complete understanding of the components related to the fault, how they interact, and what each troubleshooting procedure is trying to accomplish. There is no strict order of troubleshooting. You must use your judgment on what procedure or procedures to accomplish. Troubleshooting may occur over a period of several flights.

NOTE: The following troubleshooting procedures are generally arranged in increasing degree of complexity.

- (3) The troubleshooting procedures are summarized as follows:
 - (a) Change Configuration and Monitor – A component related to the fault is swapped with another component of the same part number. The airplane is monitored to see if the fault follows the swapped component or stays the same.
 - (b) Perform Specialized Tests/Checks – Perform tests/checks related to the fault and analyze the results.
 - (c) Visual Inspections – Perform visual inspections of the related components and wiring.
 - (d) Component Wiring Checks – Conduct on-wing checks of component wiring related to the fault.
 - (e) Airplane Wiring Checks – Conduct on-wing checks of airplane wiring related to the fault.

EFFECTIVITY
ARO ALL

27-98 TASKS 801-803

D633W103-ARO

Page 201
Jan 05/2013



777-200/300 FAULT ISOLATION MANUAL

(4) Change Configuration and Monitor

NOTE: Only components that can be readily accessed and swapped without special tooling are considered in this procedure.

(a) Actuation Control Electronics (ACE)

- 1) From the applicable WDM or SSM page determine which ACE controls the suspect component.
- 2) Swap the ACE with an ACE from another position and make a record of the ACE S/Ns and positions.
- 3) Monitor the fault history for subsequent flights.
- 4) If the fault follows the ACE, do these tasks to replace the ACE:
 - Actuator Control Electronics (ACE) Removal, AMM TASK 27-02-02-000-801
 - Actuator Control Electronics (ACE) Installation, AMM TASK 27-02-02-400-803

(5) Perform Specialized Tests/Checks

(a) Aircraft Maintenance Manual (AMM)

- 1) Review page block 500 of the AMM for the suspect component and its system for any related operational or functional tests.

NOTE: The ACE monitor test should only be performed if it is required by the Fault Isolation procedure or scheduled maintenance task. If the ACE monitor test fails, it will generate a FLIGHT CONTROL SYS EICAS status message, which must be cleared in order to dispatch the aircraft.

- 2) Use your judgment to determine what tests to run for the suspect fault.
- 3) Follow standard troubleshooting to isolate and correct any detected faults.

(b) Specialize Service Documents

- 1) Review specialized service documents (e.g., Maintenance Tips, Fleet Team Digest Articles, Service Letters, etc) for any special action related to the fault.
- 2) Use your judgment to determine what action to take based upon the specialized service document.

(6) Visual Inspections

(a) Wiring

- 1) Visually examine the wire bundles connected to the suspect component for any damage (see SWPM 20-14-11).
- 2) Disconnect the electrical connector to the suspect component and visually examine the airplane connector and the component connector for any damage or contamination.

(b) Hardware

- 1) Visually examine the suspect component for any abnormalities such as corrosion, seized control rod bearings, exposed wiring, cracked housings, etc.

(7) Component Wiring Checks

NOTE: Flight control wiring checks do not include data bus wiring.

NOTE: For flight control wiring a resistance less than 50,000 Ohms between isolated circuits should be considered a short circuit.

(a) Power Control Units (PCUs)

- 1) If the fault is related to a PCU, then do the following steps:

EFFECTIVITY
ARO ALL

27-98 TASK 803

D633W103-ARO

Page 202
Jan 05/2017



777-200/300 FAULT ISOLATION MANUAL

- Do this task to check the resistance ranges for in-service PCU wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
 - Do this task to check the low-voltage insulation resistance for in-service PCU wiring: Power Control Unit (PCU) Wiring and Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-801.
- (b) Other Flight Control Components
- 1) From the applicable SSM page or component maintenance manual (CMM), determine which contact sets form isolated circuits.
 - 2) Do a set-to-set and set-to-case low voltage insulation resistance (LVIR) check for each contact set.
- (8) Airplane Wiring Checks
- (a) Power Control Units (PCUs)
- 1) If the fault is related to a PCU, then do the following steps:
 - Do this task to check the low-voltage insulation resistance for in-service PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
 - Do this task to check the resistance ranges for in-service PCU airplane wiring: Power Control Unit (PCU) Airplane Wiring Resistance and Low Voltage Insulation Resistance (LVIR) Checks, AMM TASK 27-00-00-700-802.
- (b) Other Flight Control Components
- 1) From the applicable WDM or SSM page determine which ACE controls the suspect component.
 - 2) If applicable, open the circuit breaker that supplies power to the suspect component.
 - 3) Remove the applicable ACE and disconnect the electrical connector or connectors from the suspect component.
 - 4) From the applicable WDM or SSM page determine which circuits have not been isolated. Isolated circuits should have no connection directly or indirectly. For example, there may be contacts whose circuits are connected at a terminal block or are spliced (direct connection). Removing the applicable ACE will not isolate these circuits. Or, some circuits may be connected through a component whose electrical connector was not disconnected (indirect connection); for example, connected through an LVDT.
 - 5) Low Voltage Insulation Resistance (LVIR)

NOTE: For flight control wiring a resistance less than 50,000 Ohms between isolated circuits should be considered a short circuit.

 - a) Do a contact-to-contact and contact-to-connector shell LVIR check for each isolated circuit at the airplane connector for the suspect component. Shake the connector wiring for each contact to see if the resistance changes.
 - 6) Circuit resistance

EFFECTIVITY
ARO ALL

27-98 TASK 803

D633W103-ARO

Page 203
May 05/2014



777-200/300
FAULT ISOLATION MANUAL

- a) Measure the resistance of each circuit between the applicable ACE connector contact and the contact(s) common to the circuit in the airplane connector at the suspect component.

NOTE: For flight control wiring a resistance greater than 6 Ohms for a circuit should be considered an open circuit. No guidance is available for indirectly connected circuits.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

27-98 TASK 803

D633W103-ARO

Page 204
Jan 05/2013