

CHAPTER

28

FUEL



777-200/300 FAULT ISOLATION MANUAL

CHAPTER 28 FUEL

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2	Jan 05/2013		108	Sep 05/2016		O 224	Sep 05/2017	
3	Jan 05/2017		109	Sep 05/2016		O 225	Sep 05/2017	
4	Jan 05/2013		110	Sep 05/2016		O 226	Sep 05/2017	
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112	Sep 05/2015		205	Sep 05/2016		O 241	Sep 05/2017	
113	Sep 05/2015		O 206	Sep 05/2017		O 242	Sep 05/2017	
114	Sep 05/2015		O 207	Sep 05/2017		O 243	Sep 05/2017	
115	Sep 05/2015		O 208	Sep 05/2017		O 244	Sep 05/2017	
116	Sep 05/2015		O 209	Sep 05/2017		O 245	Sep 05/2017	
117	May 05/2016		O 210	Sep 05/2017		O 246	Sep 05/2017	
118	Sep 05/2015		O 211	Sep 05/2017		O 247	Sep 05/2017	
119	Sep 05/2015		O 212	Sep 05/2017		O 248	Sep 05/2017	
120	May 05/2016		O 213	Sep 05/2017		O 249	Sep 05/2017	
121	May 05/2016		O 214	Sep 05/2017		O 250	Sep 05/2017	
122	BLANK		O 215	Sep 05/2017		O 251	Sep 05/2017	
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101	Jan 05/2013		O 217	Sep 05/2017		O 253	Sep 05/2017	
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O 257	Sep 05/2017		O 228	Sep 05/2017		O 264	Sep 05/2017	
R 258	Sep 05/2017		O 229	Sep 05/2017		O 265	Sep 05/2017	
O 259	Sep 05/2017		O 230	Sep 05/2017		O 266	Sep 05/2017	
O 260	Sep 05/2017		O 231	Sep 05/2017		O 267	Sep 05/2017	
O 261	Sep 05/2017		O 232	Sep 05/2017		O 268	Sep 05/2017	
O 262	Sep 05/2017		O 233	Sep 05/2017		O 269	Sep 05/2017	
O 263	Sep 05/2017		O 234	Sep 05/2017		O 270	Sep 05/2017	
O 264	Sep 05/2017		O 235	Sep 05/2017		O 271	Sep 05/2017	
28-22 TASKS			O 236	Sep 05/2017		O 272	Sep 05/2017	
201	Sep 05/2016		O 237	Sep 05/2017		O 273	Sep 05/2017	
202	Sep 05/2016		R 238	Sep 05/2017		O 274	Sep 05/2017	
203	Jan 05/2013		O 239	Sep 05/2017		O 275	Sep 05/2017	
O 204	Sep 05/2017		O 240	Sep 05/2017		O 276	Sep 05/2017	
O 205	Sep 05/2017		O 241	Sep 05/2017		O 277	Sep 05/2017	
O 206	Sep 05/2017		O 242	Sep 05/2017		O 278	Sep 05/2017	
O 207	Sep 05/2017		O 243	Sep 05/2017		O 279	Sep 05/2017	
O 208	Sep 05/2017		O 244	Sep 05/2017		O 280	Sep 05/2017	
O 209	Sep 05/2017		O 245	Sep 05/2017		O 281	Sep 05/2017	
O 210	Sep 05/2017		O 246	Sep 05/2017		O 282	Sep 05/2017	
O 211	Sep 05/2017		O 247	Sep 05/2017		O 283	Sep 05/2017	
O 212	Sep 05/2017		O 248	Sep 05/2017		O 284	Sep 05/2017	
O 213	Sep 05/2017		O 249	Sep 05/2017		O 285	Sep 05/2017	
O 214	Sep 05/2017		O 250	Sep 05/2017		O 286	Sep 05/2017	
O 215	Sep 05/2017		O 251	Sep 05/2017		O 287	Sep 05/2017	
O 216	Sep 05/2017		O 252	Sep 05/2017		O 288	Sep 05/2017	
O 217	Sep 05/2017		O 253	Sep 05/2017		O 289	Sep 05/2017	
O 218	Sep 05/2017		O 254	Sep 05/2017		O 290	Sep 05/2017	
O 219	Sep 05/2017		O 255	Sep 05/2017		O 291	Sep 05/2017	
O 220	Sep 05/2017		O 256	Sep 05/2017		O 292	Sep 05/2017	
O 221	Sep 05/2017		O 257	Sep 05/2017		O 293	Sep 05/2017	
O 222	Sep 05/2017		O 258	Sep 05/2017		O 294	Sep 05/2017	
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O 224	Sep 05/2017		O 260	Sep 05/2017		O 296	Sep 05/2017	
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O 298.1	Sep 05/2017		O 298.37	Sep 05/2017		O 298.73	Sep 05/2017	
O 298.2	Sep 05/2017		O 298.38	Sep 05/2017		O 298.74	Sep 05/2017	
O 298.3	Sep 05/2017		O 298.39	Sep 05/2017		O 298.75	Sep 05/2017	
O 298.4	Sep 05/2017		O 298.40	Sep 05/2017		O 298.76	Sep 05/2017	
O 298.5	Sep 05/2017		O 298.41	Sep 05/2017		O 298.77	Sep 05/2017	
O 298.6	Sep 05/2017		O 298.42	Sep 05/2017		O 298.78	Sep 05/2017	
O 298.7	Sep 05/2017		O 298.43	Sep 05/2017		O 298.79	Sep 05/2017	
O 298.8	Sep 05/2017		O 298.44	Sep 05/2017		O 298.80	Sep 05/2017	
O 298.9	Sep 05/2017		O 298.45	Sep 05/2017		O 298.81	Sep 05/2017	
O 298.10	Sep 05/2017		O 298.46	Sep 05/2017		O 298.82	Sep 05/2017	
O 298.11	Sep 05/2017		O 298.47	Sep 05/2017		O 298.83	Sep 05/2017	
O 298.12	Sep 05/2017		O 298.48	Sep 05/2017		O 298.84	Sep 05/2017	
O 298.13	Sep 05/2017		O 298.49	Sep 05/2017		O 298.85	Sep 05/2017	
O 298.14	Sep 05/2017		O 298.50	Sep 05/2017		O 298.86	Sep 05/2017	
O 298.15	Sep 05/2017		O 298.51	Sep 05/2017		O 298.87	Sep 05/2017	
O 298.16	Sep 05/2017		O 298.52	Sep 05/2017		O 298.88	Sep 05/2017	
O 298.17	Sep 05/2017		O 298.53	Sep 05/2017		O 298.89	Sep 05/2017	
O 298.18	Sep 05/2017		O 298.54	Sep 05/2017		O 298.90	Sep 05/2017	
O 298.19	Sep 05/2017		O 298.55	Sep 05/2017		O 298.91	Sep 05/2017	
O 298.20	Sep 05/2017		O 298.56	Sep 05/2017		O 298.92	Sep 05/2017	
O 298.21	Sep 05/2017		O 298.57	Sep 05/2017		O 298.93	Sep 05/2017	
O 298.22	Sep 05/2017		O 298.58	Sep 05/2017		O 298.94	Sep 05/2017	
O 298.23	Sep 05/2017		O 298.59	Sep 05/2017		O 298.95	Sep 05/2017	
O 298.24	Sep 05/2017		O 298.60	Sep 05/2017		O 298.96	Sep 05/2017	
O 298.25	Sep 05/2017		O 298.61	Sep 05/2017		O 298.97	Sep 05/2017	
O 298.26	Sep 05/2017		O 298.62	Sep 05/2017		O 298.98	Sep 05/2017	
O 298.27	Sep 05/2017		O 298.63	Sep 05/2017		O 298.99	Sep 05/2017	
O 298.28	Sep 05/2017		O 298.64	Sep 05/2017		O 298.100	Sep 05/2017	
O 298.29	Sep 05/2017		O 298.65	Sep 05/2017		O 298.101	Sep 05/2017	
O 298.30	Sep 05/2017		O 298.66	Sep 05/2017		O 298.102	Sep 05/2017	
O 298.31	Sep 05/2017		O 298.67	Sep 05/2017		O 298.103	Sep 05/2017	
O 298.32	Sep 05/2017		O 298.68	Sep 05/2017		O 298.104	Sep 05/2017	
O 298.33	Sep 05/2017		O 298.69	Sep 05/2017		O 298.105	Sep 05/2017	
O 298.34	Sep 05/2017		O 298.70	Sep 05/2017		O 298.106	Sep 05/2017	
O 298.35	Sep 05/2017		O 298.71	Sep 05/2017		O 298.107	Sep 05/2017	
O 298.36	Sep 05/2017		O 298.72	Sep 05/2017		O 298.108	Sep 05/2017	

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O 298.109	Sep 05/2017		O 227	Sep 05/2017		O 221	Sep 05/2017	
O 298.110	Sep 05/2017		O 228	Sep 05/2017		O 222	Sep 05/2017	
A 298.111	Sep 05/2017		O 229	Sep 05/2017		O 223	Sep 05/2017	
A 298.112	BLANK		O 230	Sep 05/2017		O 224	Sep 05/2017	
28-22 TASK SUPPORT			O 231	Sep 05/2017		O 225	Sep 05/2017	
301	May 05/2016		O 232	Sep 05/2017		O 226	Sep 05/2017	
302	May 05/2016		28-26 TASKS			O 227	Sep 05/2017	
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28-25 TASKS			O 203	Sep 05/2017		O 230	Sep 05/2017	
O 201	Sep 05/2017		O 204	Sep 05/2017		O 231	Sep 05/2017	
O 202	Sep 05/2017		O 205	Sep 05/2017		O 232	Sep 05/2017	
O 203	Sep 05/2017		O 206	Sep 05/2017		O 233	Sep 05/2017	
O 204	Sep 05/2017		O 207	Sep 05/2017		O 234	Sep 05/2017	
O 205	Sep 05/2017		208	BLANK		O 235	Sep 05/2017	
O 206	Sep 05/2017		28-31 TASKS			O 236	Sep 05/2017	
O 207	Sep 05/2017		O 201	Sep 05/2017		O 237	Sep 05/2017	
O 208	Sep 05/2017		O 202	Sep 05/2017		O 238	Sep 05/2017	
O 209	Sep 05/2017		203	Sep 05/2016		O 239	Sep 05/2017	
O 210	Sep 05/2017		204	Sep 05/2016		O 240	Sep 05/2017	
O 211	Sep 05/2017		O 205	Sep 05/2017		O 241	Sep 05/2017	
O 212	Sep 05/2017		O 206	Sep 05/2017		O 242	Sep 05/2017	
O 213	Sep 05/2017		O 207	Sep 05/2017		O 243	Sep 05/2017	
O 214	Sep 05/2017		O 208	Sep 05/2017		O 244	Sep 05/2017	
O 215	Sep 05/2017		O 209	Sep 05/2017		O 245	Sep 05/2017	
O 216	Sep 05/2017		O 210	Sep 05/2017		O 246	Sep 05/2017	
O 217	Sep 05/2017		O 211	Sep 05/2017		O 247	Sep 05/2017	
O 218	Sep 05/2017		O 212	Sep 05/2017		O 248	Sep 05/2017	
O 219	Sep 05/2017		O 213	Sep 05/2017		O 249	Sep 05/2017	
O 220	Sep 05/2017		O 214	Sep 05/2017		O 250	Sep 05/2017	
O 221	Sep 05/2017		O 215	Sep 05/2017		O 251	Sep 05/2017	
O 222	Sep 05/2017		O 216	Sep 05/2017		O 252	Sep 05/2017	
O 223	Sep 05/2017		O 217	Sep 05/2017		O 253	Sep 05/2017	
O 224	Sep 05/2017		O 218	Sep 05/2017		O 254	Sep 05/2017	
O 225	Sep 05/2017		O 219	Sep 05/2017		O 255	Sep 05/2017	
O 226	Sep 05/2017		O 220	Sep 05/2017		O 256	Sep 05/2017	

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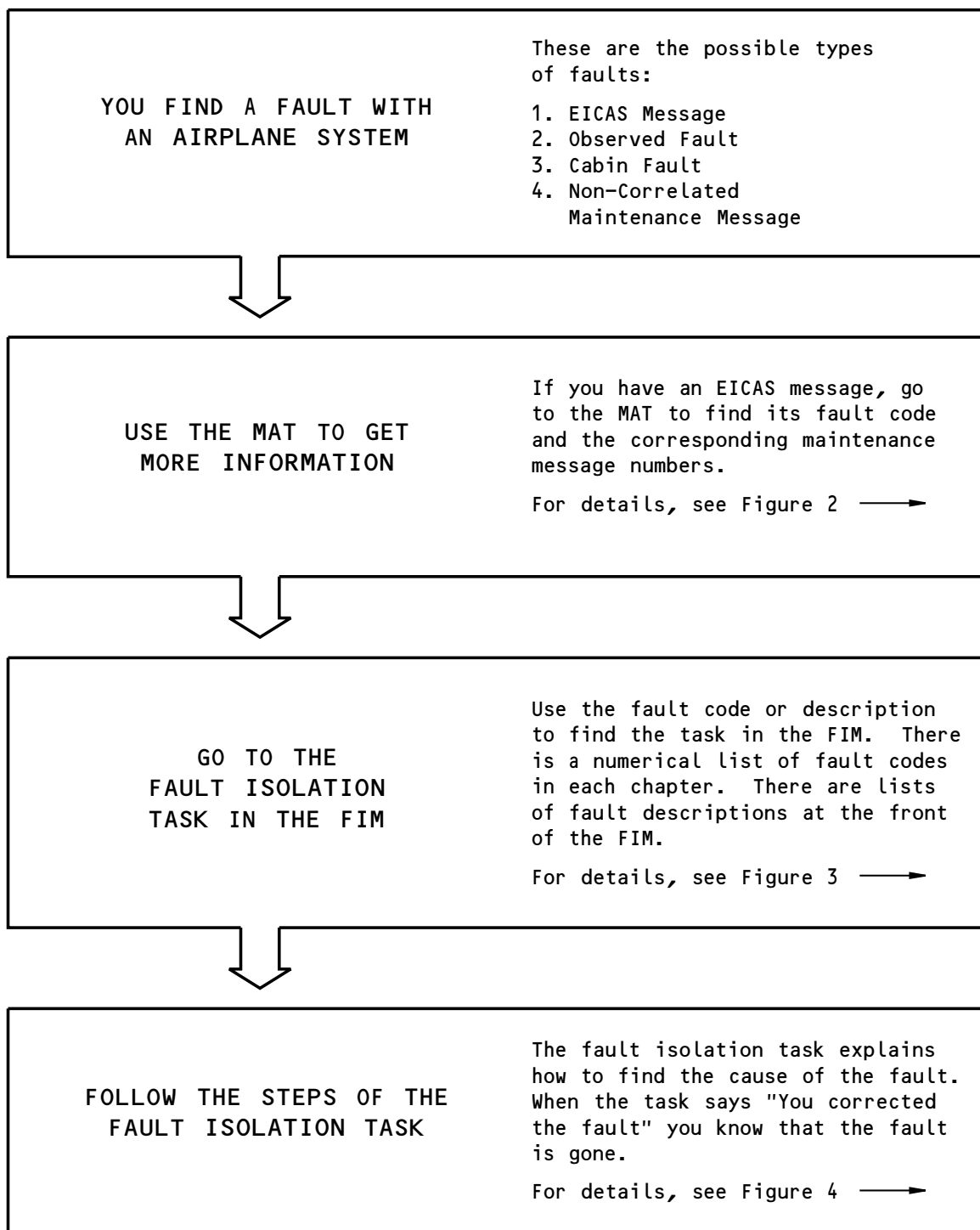
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28-31 TASKS (cont)			28-31 TASKS (cont)			28-41 TASKS (cont)		
O 257	Sep 05/2017		O 293	Sep 05/2017		232	Sep 05/2016	
O 258	Sep 05/2017		O 294	Sep 05/2017		233	Sep 05/2016	
O 259	Sep 05/2017		A 295	Sep 05/2017		234	Sep 05/2016	
O 260	Sep 05/2017		A 296	BLANK		235	Sep 05/2016	
O 261	Sep 05/2017		28-41 TASKS			236	Sep 05/2016	
O 262	Sep 05/2017		201	Jan 05/2017		237	Sep 05/2016	
O 263	Sep 05/2017		202	Jan 05/2017		238	Jan 05/2017	
O 264	Sep 05/2017		203	Jan 05/2017		239	Jan 05/2017	
O 265	Sep 05/2017		204	Jan 05/2017		240	Jan 05/2017	
O 266	Sep 05/2017		205	Jan 05/2017		241	Jan 05/2017	
O 267	Sep 05/2017		206	Jan 05/2017		242	Jan 05/2017	
O 268	Sep 05/2017		207	Jan 05/2017		243	Jan 05/2017	
O 269	Sep 05/2017		208	Jan 05/2017		244	Jan 05/2017	
O 270	Sep 05/2017		209	Sep 05/2016		245	Jan 05/2017	
O 271	Sep 05/2017		O 210	Sep 05/2017		246	Jan 05/2017	
O 272	Sep 05/2017		211	Sep 05/2016		R 247	Sep 05/2017	
O 273	Sep 05/2017		212	Sep 05/2016		O 248	Sep 05/2017	
O 274	Sep 05/2017		213	Sep 05/2016		O 249	Sep 05/2017	
O 275	Sep 05/2017		214	Sep 05/2016		250	BLANK	
O 276	Sep 05/2017		215	Sep 05/2016		28-41 TASK SUPPORT		
O 277	Sep 05/2017		216	Sep 05/2016		R 301	Sep 05/2017	
O 278	Sep 05/2017		217	Jan 05/2017		O 302	Sep 05/2017	
O 279	Sep 05/2017		O 218	Sep 05/2017		O 303	Sep 05/2017	
O 280	Sep 05/2017		219	Jan 05/2017		O 304	Sep 05/2017	
O 281	Sep 05/2017		220	Jan 05/2017		A 305	Sep 05/2017	
O 282	Sep 05/2017		221	Jan 05/2017		A 306	BLANK	
O 283	Sep 05/2017		222	Sep 05/2016		28-43 TASKS		
O 284	Sep 05/2017		223	Sep 05/2016		201	Jan 05/2013	
O 285	Sep 05/2017		224	Sep 05/2016		202	Jan 05/2013	
O 286	Sep 05/2017		O 225	Sep 05/2017		28-98 TASKS		
O 287	Sep 05/2017		226	Sep 05/2016		201	Sep 05/2013	
O 288	Sep 05/2017		227	Sep 05/2016		202	BLANK	
O 289	Sep 05/2017		O 228	Sep 05/2017				
O 290	Sep 05/2017		229	Sep 05/2016				
O 291	Sep 05/2017		230	Sep 05/2016				
O 292	Sep 05/2017		231	Sep 05/2016				

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E84424 S0000132469_V1

Basic Fault Isolation Process
Figure 1

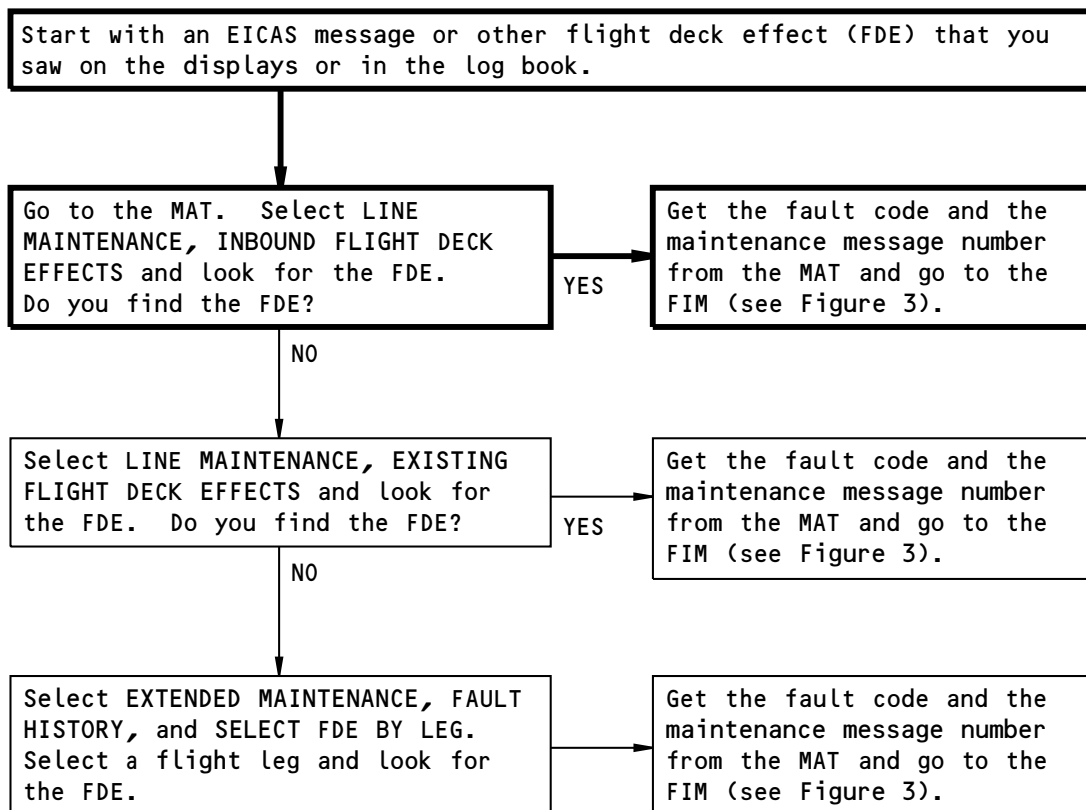
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NOTE: The bold lines show the most common path.

E84425 S0000132475_V1

Getting Fault Information from the MAT
Figure 2

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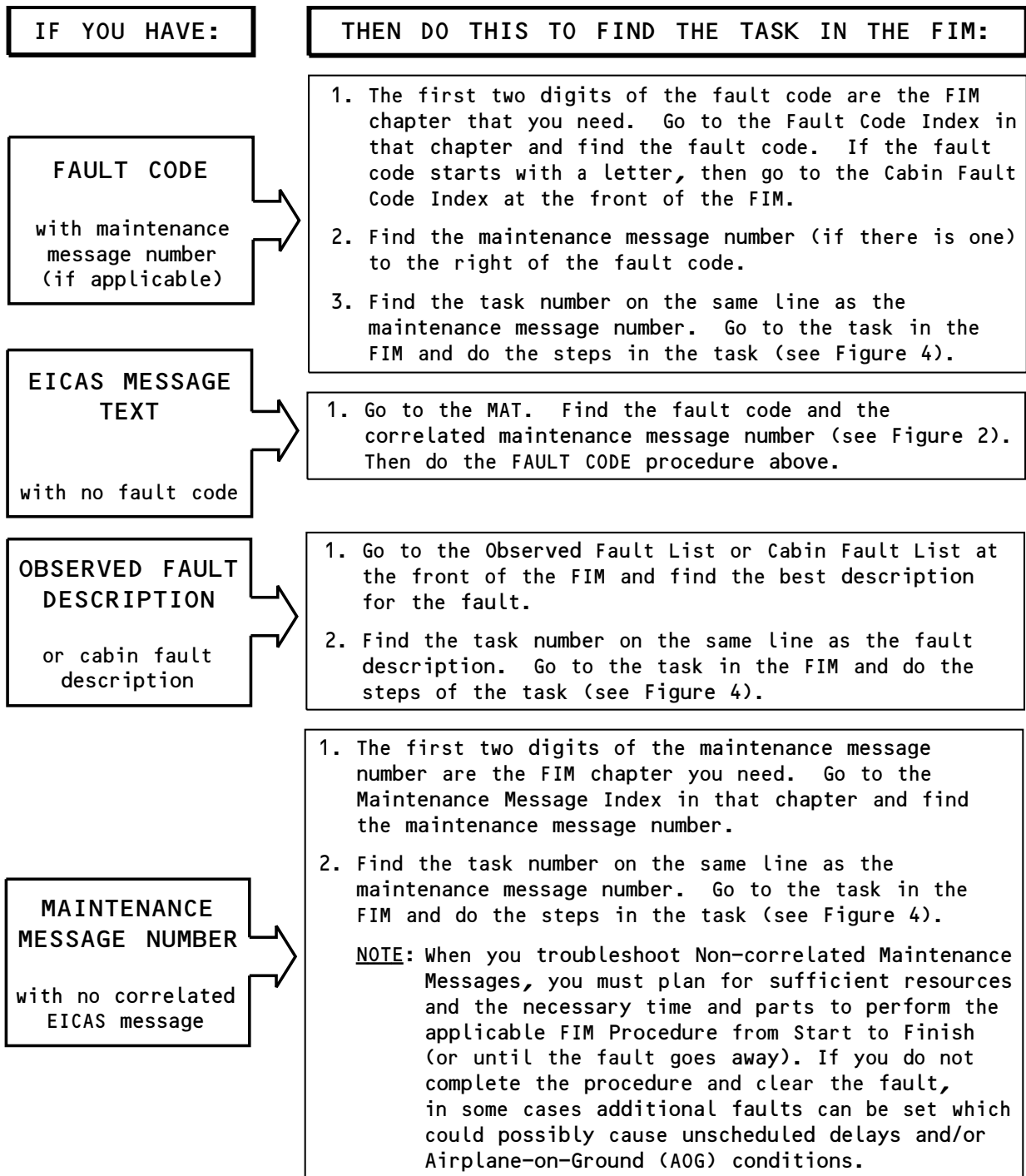
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E84427 S0000132476_V2

Finding the Fault Isolation Task in the FIM
Figure 3

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ASSUMED CONDITIONS AT START OF TASK

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

INITIAL EVALUATION PARAGRAPH

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

FAULT ISOLATION STEPS

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

WIRING CHECKS

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

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

E84428 S0000132477_V3

Doing the Fault Isolation Task
Figure 4

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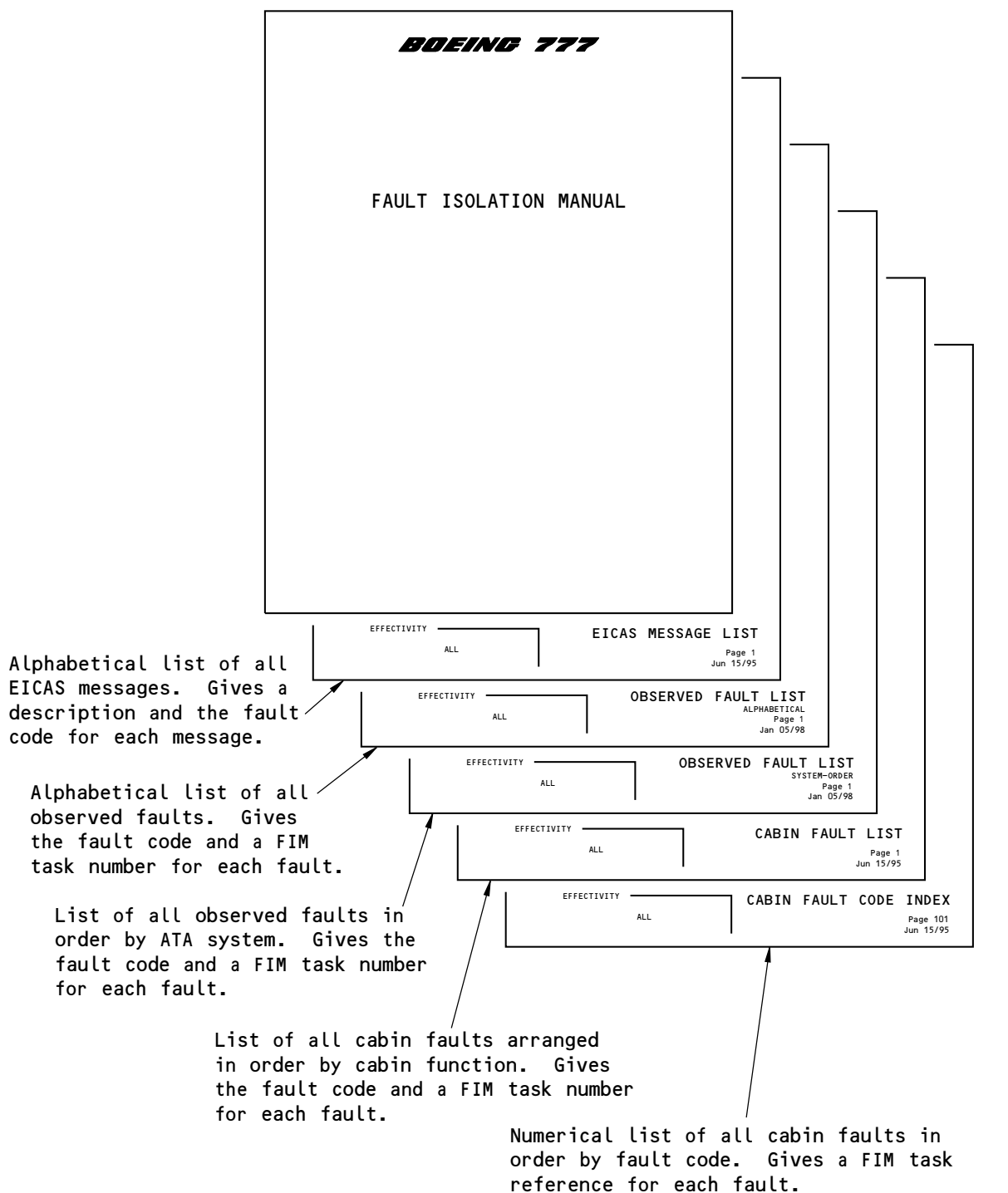
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F39750 S0000132478_V1

Subjects at Front of FIM
Figure 5

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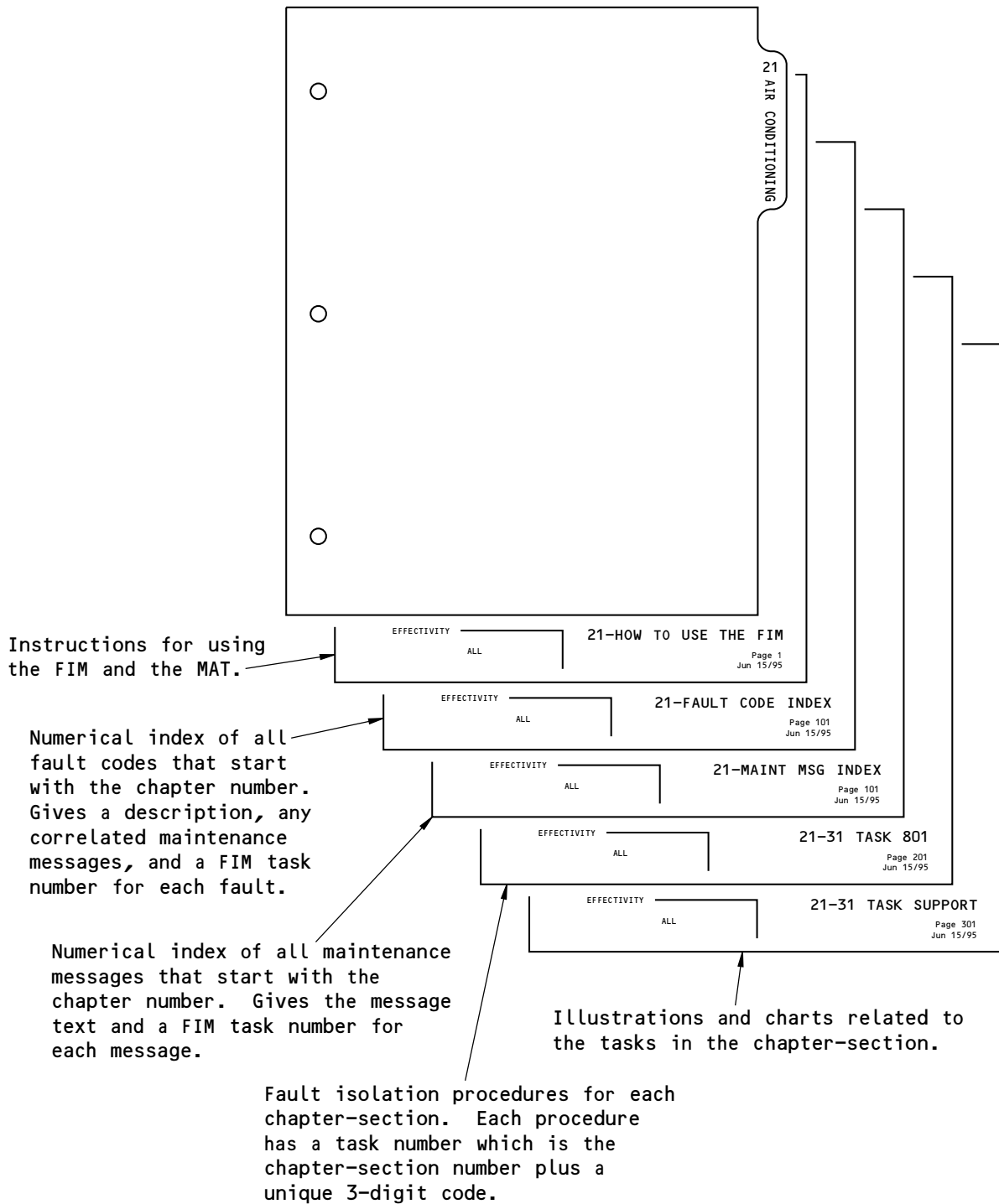
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F39837 S0000132479_V1

Subjects in Each FIM Chapter
Figure 6

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
280 611 00	Fuel synoptic problem.		28-22 TASK 848
281 811 00	Fuel leakage - wing lower surface.		28-11 TASK 801
281 816 00	Fuel leakage - APU shroud drain mast.		28-11 TASK 802
281 817 41	Fuel leakage - left engine strut.		28-11 TASK 804
281 817 42	Fuel leakage - right engine strut.		28-11 TASK 805
281 821 00	Fuel tank: evidence of hydraulic fluid leakage inside fuel tank.		28-11 TASK 806
281 831 00	Fuel tank sumping: excessive water found during regular fuel tank sumping.		28-22 TASK 859
282 001 41	FUEL PRESS ENG L (EICAS CAUTION)		28-22 TASK 843
282 001 42	FUEL PRESS ENG R (EICAS CAUTION)		28-22 TASK 843
282 002 00	FUEL PRESS ENG L+R (EICAS ADVISORY)		28-22 TASK 843
282 011 44	FUEL CROSSFEED FWD (EICAS ADVISORY)	23-41300 23-42300 23-43300 28-11035	23-93 TASK 801 23-93 TASK 802 28-22 TASK 802 28-22 TASK 884
282 011 45	FUEL CROSSFEED AFT (EICAS ADVISORY)	23-41010 23-42010 23-43010 28-13113	23-93 TASK 803 23-93 TASK 804 28-22 TASK 801 28-22 TASK 885
282 012 44	FUEL CROSSFEED FWD (EICAS STATUS)	23-41300 23-42300 23-43300 28-11035	23-93 TASK 801 23-93 TASK 802 28-22 TASK 802 28-22 TASK 884
282 012 45	FUEL CROSSFEED AFT (EICAS STATUS)	23-41010 23-42010 23-43010 28-13113	23-93 TASK 803 23-93 TASK 804 28-22 TASK 801 28-22 TASK 885
282 021 44	FUEL PUMP L FWD (EICAS ADVISORY)	24-13809 24-13810 28-11044 28-13114 28-13123 28-13126	24-22 TASK 849 24-51 TASK 845 28-22 TASK 880 28-22 TASK 886 28-22 TASK 878 28-22 TASK 882

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
282 021 45	FUEL PUMP L AFT (EICAS ADVISORY)	23-41380	23-93 TASK 803
		23-42380	23-93 TASK 804
		23-43380	28-22 TASK 808
		23-45010	23-93 TASK 881
		23-46010	23-93 TASK 806
		23-48010	23-93 TASK 803
		23-48020	23-93 TASK 804
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		23-92010	23-93 TASK 879
		23-92020	23-93 TASK 880
		28-11036	28-22 TASK 870
		28-11043	28-22 TASK 868
282 022 44	FUEL PUMP L FWD (EICAS STATUS)	23-41350	23-93 TASK 801
		23-42350	23-93 TASK 802
		23-43350	28-22 TASK 806
		24-13809	24-22 TASK 849
		24-13810	24-51 TASK 845
		28-11044	28-22 TASK 880
		28-13114	28-22 TASK 886
		28-13123	28-22 TASK 878
		28-13126	28-22 TASK 882
282 022 45	FUEL PUMP L AFT (EICAS STATUS)	23-41380	23-93 TASK 803
		23-42380	23-93 TASK 804
		23-43380	28-22 TASK 808
		23-45010	23-93 TASK 881
		23-46010	23-93 TASK 806
		23-48010	23-93 TASK 803
		23-48020	23-93 TASK 804
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		23-92010	23-93 TASK 879
		23-92020	23-93 TASK 880
		28-11036	28-22 TASK 870
		28-11043	28-22 TASK 868

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
282 031 44	FUEL PUMP R FWD (EICAS ADVISORY)	23-41800	23-93 TASK 803
		23-42800	23-93 TASK 804
		23-43800	28-22 TASK 807
		23-45010	23-93 TASK 881
		23-46010	23-93 TASK 806
		23-48010	23-93 TASK 803
		23-48020	23-93 TASK 804
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		23-92010	23-93 TASK 879
		23-92020	23-93 TASK 880
		28-11047	28-22 TASK 879
		28-11048	28-22 TASK 883
		28-11050	28-22 TASK 887
		28-12034	28-22 TASK 881
282 031 45	FUEL PUMP R AFT (EICAS ADVISORY)	23-41740	23-93 TASK 801
		23-42740	23-93 TASK 802
		23-43740	28-22 TASK 809
		23-45010	23-93 TASK 881
		23-46010	23-93 TASK 806
		23-47010	23-93 TASK 801
		23-47020	23-93 TASK 802
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		23-91010	23-93 TASK 816
		23-91020	23-93 TASK 878
		28-12022	28-22 TASK 871
		28-12032	28-22 TASK 869
282 032 44	FUEL PUMP R FWD (EICAS STATUS)	23-41800	23-93 TASK 803
		23-42800	23-93 TASK 804
		23-43800	28-22 TASK 807
		23-45010	23-93 TASK 881
		23-46010	23-93 TASK 806
		23-48010	23-93 TASK 803
		23-48020	23-93 TASK 804
		23-81004	23-91 TASK 804

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
282 032 44	FUEL PUMP R FWD (EICAS STATUS)	(continued)	
		23-81006	23-91 TASK 806
		23-92010	23-93 TASK 879
		23-92020	23-93 TASK 880
		28-11047	28-22 TASK 879
		28-11048	28-22 TASK 883
		28-11050	28-22 TASK 887
		28-12034	28-22 TASK 881
282 032 45	FUEL PUMP R AFT (EICAS STATUS)	23-41740	23-93 TASK 801
		23-42740	23-93 TASK 802
		23-43740	28-22 TASK 809
		23-45010	23-93 TASK 881
		23-46010	23-93 TASK 806
		23-47010	23-93 TASK 801
		23-47020	23-93 TASK 802
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		23-91010	23-93 TASK 816
		23-91020	23-93 TASK 878
		28-12022	28-22 TASK 871
		28-12032	28-22 TASK 869
282 041 41	FUEL PUMP CENTER L (EICAS ADVISORY)	23-41410	23-93 TASK 801
		23-42410	23-93 TASK 802
		23-43410	28-22 TASK 804
		23-45010	23-93 TASK 881
		23-46010	23-93 TASK 806
		23-47010	23-93 TASK 801
		23-47020	23-93 TASK 802
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		23-91010	23-93 TASK 816
		23-91020	23-93 TASK 878
		24-11787	24-32 TASK 817
		28-11033	28-22 TASK 860
		28-11034	28-22 TASK 876
		28-11042	28-22 TASK 864

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
282 041 41	FUEL PUMP CENTER L (EICAS ADVISORY)	(continued)	
		28-11053	28-22 TASK 861
		28-11055	28-22 TASK 890
		28-11056	28-31 TASK 836
282 041 42	FUEL PUMP CENTER R (EICAS ADVISORY)	23-41770	23-93 TASK 803
		23-42770	23-93 TASK 804
		23-43770	28-22 TASK 805
		23-45010	23-93 TASK 881
		23-46010	23-93 TASK 806
		23-48010	23-93 TASK 803
		23-48020	23-93 TASK 804
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		23-92010	23-93 TASK 879
		23-92020	23-93 TASK 880
		24-11787	24-32 TASK 817
		24-12056	24-32 TASK 820
		28-12027	28-22 TASK 865
		28-12030	28-22 TASK 862
		28-12037	28-22 TASK 877
		28-12038	28-22 TASK 863
		28-12039	28-22 TASK 891
		28-12047	28-31 TASK 837
282 042 41	FUEL PUMP CENTER L (EICAS STATUS)	23-41410	23-93 TASK 801
		23-42410	23-93 TASK 802
		23-43410	28-22 TASK 804
		23-45010	23-93 TASK 881
		23-46010	23-93 TASK 806
		23-47010	23-93 TASK 801
		23-47020	23-93 TASK 802
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		23-91010	23-93 TASK 816
		23-91020	23-93 TASK 878
		24-11787	24-32 TASK 817
		28-11033	28-22 TASK 860

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
282 042 41	FUEL PUMP CENTER L (EICAS STATUS)	(continued) 28-11034 28-11042 28-11053 28-11055 28-11056 28-22001	28-22 TASK 876 28-22 TASK 864 28-22 TASK 861 28-22 TASK 890 28-31 TASK 836 28-22 TASK 892
282 042 42	FUEL PUMP CENTER R (EICAS STATUS)	23-41770 23-42770 23-43770 23-45010 23-46010 23-48010 23-48020 23-81004 23-81006 23-92010 23-92020 24-11787 24-12056 28-12027 28-12030 28-12037 28-12038 28-12039 28-12047 28-22003 28-31001	23-93 TASK 803 23-93 TASK 804 28-22 TASK 805 23-93 TASK 881 23-93 TASK 806 23-93 TASK 803 23-93 TASK 804 23-91 TASK 804 23-91 TASK 806 23-93 TASK 879 23-93 TASK 880 24-32 TASK 817 24-32 TASK 820 28-22 TASK 865 28-22 TASK 862 28-22 TASK 877 28-22 TASK 863 28-22 TASK 891 28-31 TASK 837 28-22 TASK 894 28-31 TASK 840
282 051 00	FUEL LOW CENTER (EICAS ADVISORY)		28-22 TASK 844
282 061 41	FUEL SPAR VALVE L (EICAS STATUS) Before you do any task listed here, see FIM 28-98 TASK 803. NOTE: AIMS CAN LATCH THIS MESSAGE.	28-14001	28-22 TASK 840

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
282 061 42	FUEL SPAR VALVE R (EICAS STATUS) Before you do any task listed here, see FIM 28-98 TASK 803. NOTE: AIMS CAN LATCH THIS MESSAGE.	28-14002	28-22 TASK 841
282 071 00	FUEL SOV BATTERY (EICAS STATUS)	28-14001 28-14003	28-22 TASK 840 28-22 TASK 842
282 101 00	FUEL VALVE APU (EICAS ADVISORY)	23-41050 23-41060 23-41100 23-41160 23-41170 23-41240 23-41370 23-42050 23-42060 23-42100 23-42160 23-42170 23-42240 23-42370 23-43050 23-43060 23-43100 23-43160 23-43170 23-43240 23-43370 23-47010 23-47020 23-48010 23-48020 23-91010 23-91020 23-92010 23-92020	23-93 TASK 801 23-93 TASK 803 23-93 TASK 803 23-93 TASK 801 23-93 TASK 801 23-93 TASK 801 23-93 TASK 801 23-93 TASK 802 23-93 TASK 804 23-93 TASK 804 23-93 TASK 802 23-93 TASK 802 23-93 TASK 802 23-93 TASK 802 26-22 TASK 801 28-25 TASK 801 30-11 TASK 803 26-23 TASK 802 26-23 TASK 803 26-23 TASK 804 21-31 TASK 818 23-93 TASK 801 23-93 TASK 802 23-93 TASK 803 23-93 TASK 804 23-93 TASK 816 23-93 TASK 878 23-93 TASK 879 23-93 TASK 880

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
282 101 00	FUEL VALVE APU (EICAS ADVISORY)	(continued)	
		28-19423	28-25 TASK 811
		28-19424	28-25 TASK 811
		28-19429	28-25 TASK 817
		28-19430	28-25 TASK 819
		49-17004	49-10 TASK 833
282 102 00	FUEL VALVE APU (EICAS STATUS)	23-41050	23-93 TASK 801
		23-41060	23-93 TASK 803
		23-41100	23-93 TASK 803
		23-41160	23-93 TASK 801
		23-41170	23-93 TASK 801
		23-41240	23-93 TASK 801
		23-41370	23-93 TASK 801
		23-42050	23-93 TASK 802
		23-42060	23-93 TASK 804
		23-42100	23-93 TASK 804
		23-42160	23-93 TASK 802
		23-42170	23-93 TASK 802
		23-42240	23-93 TASK 802
		23-42370	23-93 TASK 802
		23-43050	26-22 TASK 801
		23-43060	28-25 TASK 801
		23-43100	30-11 TASK 803
		23-43160	26-23 TASK 802
		23-43170	26-23 TASK 803
		23-43240	26-23 TASK 804
		23-43370	21-31 TASK 818
		23-47010	23-93 TASK 801
		23-47020	23-93 TASK 802
		23-48010	23-93 TASK 803
		23-48020	23-93 TASK 804
		23-91010	23-93 TASK 816
		23-91020	23-93 TASK 878
		23-92010	23-93 TASK 879
		23-92020	23-93 TASK 880
		28-19423	28-25 TASK 811

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
282 102 00	FUEL VALVE APU (EICAS STATUS)	(continued) 28-19424 28-19429 28-19430 49-17004 NONE	28-25 TASK 811 28-25 TASK 817 28-25 TASK 819 49-10 TASK 833 28-25 TASK 810
282 103 00	FUEL ISLN VALVE APU (EICAS STATUS)	28-13120 28-19425	28-25 TASK 813 28-25 TASK 812
282 111 00	FUEL PUMP APU (EICAS STATUS)	28-19426 28-19428	28-25 TASK 814 28-25 TASK 816
282 122 41	FUEL FLOW ENG L (EICAS ADVISORY)		28-41 TASK 854
282 122 42	FUEL FLOW ENG R (EICAS ADVISORY)		28-41 TASK 854
282 611 00	Fuel transfer when not commanded.		28-22 TASK 849
282 622 41	Fuel pump PRESS light in CENTER PUMPS switch: Comes on with airplane on the ground - CENTER PUMPS L switch.		28-22 TASK 852
282 622 42	Fuel pump PRESS light in CENTER PUMPS switch: Comes on with airplane on the ground - CENTER PUMPS R switch.		28-22 TASK 852
282 811 00	Integrated refuel panel: Indicators and lights (all) stay off when panel is opened.		28-21 TASK 817
282 821 00	FUEL QTY/LOAD SEL indicator problems - integrated refuel panel.		28-21 TASK 818
282 823 00	LOAD SELECT QTY switch problems - integrated refuel panel.		28-21 TASK 819
282 831 00	REFUEL VALVE light problems - integrated refuel panel.		28-21 TASK 816
282 832 00	Fueling: does not stop when REFUEL light goes off.		28-21 TASK 827
282 833 00	OVERFILL IND light: light does not come on with fuel in the surge tanks - integrated refuel panel.		28-21 TASK 820
282 834 00	OVERFILL IND light: light comes on with no fuel in the surge tanks - integrated refuel panel.		28-21 TASK 820
282 835 00	Fueling: Slow to refuel.		28-21 TASK 826
282 836 00	Fueling: early shutoff during refuel.		28-21 TASK 828
282 837 00	OVERFILL IND light: light is on after refueling - integrated refuel panel.		28-21 TASK 827

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282 838 00	Fueling: fuel found in surge tank after refueling.		28-21 TASK 827
282 841 00	DEFUEL VALVE light problems - integrated refuel panel.		28-26 TASK 802
282 851 41	Fuel quantity maintenance page: L MAIN WATER message shows.		28-22 TASK 859
282 851 42	Fuel quantity maintenance page: R MAIN WATER message shows.		28-22 TASK 859
282 852 41	Fuel quantity maintenance page: CENTER TANK WATER L message shows.		28-22 TASK 859
282 852 42	Fuel quantity maintenance page: CENTER TANK WATER R message shows.		28-22 TASK 859
283 001 00	FUEL JETTISON SYS (EICAS CAUTION)	23-41001	23-93 TASK 819
		23-41002	23-93 TASK 844
		23-41010	23-93 TASK 803
		23-41220	23-93 TASK 801
		23-41260	23-93 TASK 801
		23-41280	23-93 TASK 803
		23-41300	23-93 TASK 801
		23-41350	23-93 TASK 801
		23-41380	23-93 TASK 803
		23-41410	23-93 TASK 801
		23-41440	23-93 TASK 801
		23-41740	23-93 TASK 801
		23-41770	23-93 TASK 803
		23-41790	23-93 TASK 803
		23-41800	23-93 TASK 803
		23-42001	23-93 TASK 841
		23-42002	23-93 TASK 845
		23-42010	23-93 TASK 804
		23-42220	23-93 TASK 802
		23-42260	23-93 TASK 802
		23-42280	23-93 TASK 804
		23-42300	23-93 TASK 802
		23-42350	23-93 TASK 802
		23-42380	23-93 TASK 804
		23-42410	23-93 TASK 802

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283 001 00	FUEL JETTISON SYS (EICAS CAUTION)	(continued)	
		23-42440	23-93 TASK 802
		23-42740	23-93 TASK 802
		23-42770	23-93 TASK 804
		23-42790	23-93 TASK 804
		23-42800	23-93 TASK 804
		23-43010	28-22 TASK 801
		23-43260	28-31 TASK 801
		23-43280	28-31 TASK 802
		23-43300	28-22 TASK 802
		23-43350	28-22 TASK 806
		23-43380	28-22 TASK 808
		23-43410	28-22 TASK 804
		23-43440	28-31 TASK 803
		23-43740	28-22 TASK 809
		23-43770	28-22 TASK 805
		23-43790	28-31 TASK 804
		23-43800	28-22 TASK 807
		23-45010	23-93 TASK 881
		23-46010	23-93 TASK 806
		23-47010	23-93 TASK 801
		23-47020	23-93 TASK 802
		23-48010	23-93 TASK 803
		23-48020	23-93 TASK 804
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		23-91010	23-93 TASK 816
		23-91020	23-93 TASK 878
		23-92010	23-93 TASK 879
		23-92020	23-93 TASK 880
		24-12056	24-32 TASK 820
		24-13815	24-61 TASK 806
283 002 00	FUEL JETTISON SYS (EICAS STATUS)	23-41001	23-93 TASK 819
		23-41002	23-93 TASK 844
		23-41010	23-93 TASK 803
		23-41220	23-93 TASK 801

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
283 002 00	FUEL JETTISON SYS (EICAS STATUS)	(continued)	
		23-41260	23-93 TASK 801
		23-41280	23-93 TASK 803
		23-41300	23-93 TASK 801
		23-41350	23-93 TASK 801
		23-41380	23-93 TASK 803
		23-41410	23-93 TASK 801
		23-41440	23-93 TASK 801
		23-41740	23-93 TASK 801
		23-41770	23-93 TASK 803
		23-41790	23-93 TASK 803
		23-41800	23-93 TASK 803
		23-42001	23-93 TASK 841
		23-42002	23-93 TASK 845
		23-42010	23-93 TASK 804
		23-42220	23-93 TASK 802
		23-42260	23-93 TASK 802
		23-42280	23-93 TASK 804
		23-42300	23-93 TASK 802
		23-42350	23-93 TASK 802
		23-42380	23-93 TASK 804
		23-42410	23-93 TASK 802
		23-42440	23-93 TASK 802
		23-42740	23-93 TASK 802
		23-42770	23-93 TASK 804
		23-42790	23-93 TASK 804
		23-42800	23-93 TASK 804
		23-43010	28-22 TASK 801
		23-43260	28-31 TASK 801
		23-43280	28-31 TASK 802
		23-43300	28-22 TASK 802
		23-43350	28-22 TASK 806
		23-43380	28-22 TASK 808
		23-43410	28-22 TASK 804
		23-43440	28-31 TASK 803
		23-43740	28-22 TASK 809

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283 002 00	FUEL JETTISON SYS (EICAS STATUS)	(continued)	
		23-43770	28-22 TASK 805
		23-43790	28-31 TASK 804
		23-43800	28-22 TASK 807
		23-45010	23-93 TASK 881
		23-46010	23-93 TASK 806
		23-47010	23-93 TASK 801
		23-47020	23-93 TASK 802
		23-48010	23-93 TASK 803
		23-48020	23-93 TASK 804
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		23-91010	23-93 TASK 816
		23-91020	23-93 TASK 878
		23-92010	23-93 TASK 879
		23-92020	23-93 TASK 880
		24-12056	24-32 TASK 820
		24-13815	24-61 TASK 806
283 003 00	FUEL JETTISON MAIN (EICAS ADVISORY)	24-11787	24-32 TASK 817
		24-12056	24-32 TASK 820
		28-11031	28-31 TASK 820
		28-11032	28-31 TASK 834
		28-11038	28-31 TASK 826
		28-11054	28-31 TASK 821
		28-11056	28-31 TASK 836
		28-12024	28-31 TASK 827
		28-12029	28-31 TASK 822
		28-12036	28-31 TASK 835
		28-12046	28-31 TASK 823
		28-12047	28-31 TASK 837
283 011 00	FUEL AUTO JETTISON (EICAS CAUTION)	23-41001	23-93 TASK 819
		23-41002	23-93 TASK 844
		23-41010	23-93 TASK 803
		23-41220	23-93 TASK 801
		23-41260	23-93 TASK 801
		23-41280	23-93 TASK 803

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283 011 00	FUEL AUTO JETTISON (EICAS CAUTION)	(continued)	
		23-41300	23-93 TASK 801
		23-41350	23-93 TASK 801
		23-41380	23-93 TASK 803
		23-41410	23-93 TASK 801
		23-41440	23-93 TASK 801
		23-41740	23-93 TASK 801
		23-41770	23-93 TASK 803
		23-41790	23-93 TASK 803
		23-41800	23-93 TASK 803
		23-42001	23-93 TASK 841
		23-42002	23-93 TASK 845
		23-42010	23-93 TASK 804
		23-42220	23-93 TASK 802
		23-42260	23-93 TASK 802
		23-42280	23-93 TASK 804
		23-42300	23-93 TASK 802
		23-42350	23-93 TASK 802
		23-42380	23-93 TASK 804
		23-42410	23-93 TASK 802
		23-42440	23-93 TASK 802
		23-42740	23-93 TASK 802
		23-42770	23-93 TASK 804
		23-42790	23-93 TASK 804
		23-42800	23-93 TASK 804
		23-43010	28-22 TASK 801
		23-43260	28-31 TASK 801
		23-43280	28-31 TASK 802
		23-43300	28-22 TASK 802
		23-43350	28-22 TASK 806
		23-43380	28-22 TASK 808
		23-43410	28-22 TASK 804
		23-43440	28-31 TASK 803
		23-43740	28-22 TASK 809
		23-43770	28-22 TASK 805
		23-43790	28-31 TASK 804

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283 011 00	FUEL AUTO JETTISON (EICAS CAUTION)	(continued)	
		23-43800	28-22 TASK 807
		23-45010	23-93 TASK 881
		23-46010	23-93 TASK 806
		23-47010	23-93 TASK 801
		23-47020	23-93 TASK 802
		23-48010	23-93 TASK 803
		23-48020	23-93 TASK 804
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		23-91010	23-93 TASK 816
		23-91020	23-93 TASK 878
		23-92010	23-93 TASK 879
		23-92020	23-93 TASK 880
		24-11110	34-61 TASK 943
		24-11111	28-41 TASK 801
		24-11789	28-41 TASK 801
		24-12056	24-32 TASK 820
		24-12250	28-41 TASK 801
		24-12251	34-61 TASK 943
		24-12254	28-41 TASK 801
		24-13815	24-61 TASK 806
		24-19407	24-08 TASK 874
		24-19408	24-08 TASK 875
		24-19607	24-08 TASK 879
		28-18801	28-41 TASK 801
		28-18840	28-41 TASK 802
		28-18860	28-41 TASK 803
		28-20005	28-41 TASK 802
		28-20006	28-41 TASK 803
		28-20049	28-41 TASK 812
		28-20050	28-41 TASK 801
		28-29401	28-41 TASK 802
		28-29601	28-41 TASK 803
		31-50011	31-44 TASK 801
		31-50012	31-44 TASK 802

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
283 011 00	FUEL AUTO JETTISON (EICAS CAUTION)	(continued)	
		31-50091	31-44 TASK 819
		31-50092	31-44 TASK 820
		31-51023	31-44 TASK 865
		31-51024	31-44 TASK 866
		31-51025	31-43 TASK 803
		31-51026	31-43 TASK 804
		31-51411	34-61 TASK 913
		31-51412	34-61 TASK 914
		31-51413	34-61 TASK 815
		31-51414	34-61 TASK 889
		31-51421	34-61 TASK 888
		31-51422	34-61 TASK 814
		31-51423	34-61 TASK 815
		31-51424	34-61 TASK 889
		31-54013	31-43 TASK 868
		31-54014	31-43 TASK 869
		31-54121	31-41 TASK 838
		31-54122	31-41 TASK 839
		31-58013	31-43 TASK 872
		31-58014	31-43 TASK 873
		31-58121	31-41 TASK 856
		31-58122	31-41 TASK 857
		31-69401	31-42 TASK 825
		31-69402	31-42 TASK 825
		31-69601	31-42 TASK 857
		31-69602	31-42 TASK 857
		34-71011	34-61 TASK 905
		34-71012	34-61 TASK 906
		34-71060	34-90 TASK 801
283 021 41	FUEL JETT NOZZLE L (EICAS ADVISORY)	23-41440	23-93 TASK 801
		23-42440	23-93 TASK 802
		23-43440	28-31 TASK 803
		28-11041	28-31 TASK 832
283 021 42	FUEL JETT NOZZLE R (EICAS ADVISORY)	23-41790	23-93 TASK 803
		23-42790	23-93 TASK 804

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
283 021 42	FUEL JETT NOZZLE R (EICAS ADVISORY)	(continued) 23-43790 28-12026	28-31 TASK 804 28-31 TASK 833
283 022 41	FUEL JETT NOZZLE L (EICAS STATUS)	23-41440 23-42440 23-43440 28-11041	23-93 TASK 801 23-93 TASK 802 28-31 TASK 803 28-31 TASK 832
283 022 42	FUEL JETT NOZZLE R (EICAS STATUS)	23-41790 23-42790 23-43790 28-12026	23-93 TASK 803 23-93 TASK 804 28-31 TASK 804 28-31 TASK 833
283 031 41	FUEL JETT PUMP L (EICAS STATUS) Before you do any task listed here, see FIM 28-26 TASK 804.	24-11787 28-11031 28-11032 28-11038 28-11054 28-11056 28-31003	24-32 TASK 817 28-31 TASK 820 28-31 TASK 834 28-31 TASK 826 28-31 TASK 821 28-31 TASK 836 28-31 TASK 838
283 031 42	FUEL JETT PUMP R (EICAS STATUS) Before you do any task listed here, see FIM 28-26 TASK 804.	24-11787 24-12056 28-12024 28-12029 28-12036 28-12046 28-12047 28-31001	24-32 TASK 817 24-32 TASK 820 28-31 TASK 827 28-31 TASK 822 28-31 TASK 835 28-31 TASK 823 28-31 TASK 837 28-31 TASK 840
283 041 41	JETT ISLN VALVE L (EICAS STATUS)	28-11040 28-11052	28-31 TASK 830 28-31 TASK 824
283 041 42	JETT ISLN VALVE R (EICAS STATUS)	28-12031 28-12033 NONE	28-31 TASK 831 28-31 TASK 825 28-31 TASK 817
284 001 00	FUEL QTY LOW (EICAS CAUTION)		28-22 TASK 846

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284 002 00	FUEL QTY CHANNEL (EICAS STATUS)	23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		28-20005	28-41 TASK 802
		28-20006	28-41 TASK 803
		28-20049	28-41 TASK 812
		28-20050	28-41 TASK 801
284 003 00	FUEL QTY INDICATION (EICAS STATUS)	23-81001	23-91 TASK 801
		23-81003	23-91 TASK 803
		23-81004	23-91 TASK 804
		23-81006	23-91 TASK 806
		24-11111	28-41 TASK 801
		24-11789	28-41 TASK 801
		24-12250	28-41 TASK 801
		24-12254	28-41 TASK 801
		24-19407	24-08 TASK 874
		24-19408	24-08 TASK 875
		24-19607	24-08 TASK 879
		28-18801	28-41 TASK 801
		28-18840	28-41 TASK 802
		28-18860	28-41 TASK 803
		28-20005	28-41 TASK 802
		28-20006	28-41 TASK 803
		28-20021	28-41 TASK 804
		28-20036	28-41 TASK 804
		28-20049	28-41 TASK 812
		28-20050	28-41 TASK 801
		28-20056	28-41 TASK 804
		28-20057	28-41 TASK 804
		28-20100	28-41 TASK 814
		28-20101	28-41 TASK 815
		28-20104	28-41 TASK 804
		28-20105	28-41 TASK 804
		28-20148	28-41 TASK 821
		28-20149	28-41 TASK 816
		28-20150	28-41 TASK 822
		28-20303	28-41 TASK 828

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284 003 00	FUEL QTY INDICATION (EICAS STATUS)	(continued) 28-28010 28-29401 28-29601 31-54013 31-54101 31-58014 31-58102 31-69101 31-69102 31-69117 31-69118 31-69301 31-69302 31-69317 31-69318 34-28801 34-28810 34-28830 34-29101 34-29301	28-41 TASK 823 28-41 TASK 802 28-41 TASK 803 31-43 TASK 868 31-41 TASK 834 31-43 TASK 873 31-41 TASK 853 31-42 TASK 801 31-42 TASK 801 31-42 TASK 806 31-42 TASK 806 31-42 TASK 817 31-42 TASK 817 31-42 TASK 822 31-42 TASK 822 34-21 TASK 848 34-21 TASK 849 34-21 TASK 852 34-21 TASK 893 34-21 TASK 895
284 011 00	FUEL IMBALANCE (EICAS ADVISORY)		28-22 TASK 847
284 012 00	FUEL IN CENTER (EICAS ADVISORY)	23-41410 23-41770 23-42410 23-42770 23-43410 23-43770	23-93 TASK 801 23-93 TASK 803 23-93 TASK 802 23-93 TASK 804 28-22 TASK 804 28-22 TASK 805
284 014 00	FUEL DISAGREE (EICAS ADVISORY)		28-41 TASK 825
284 016 00	INSUFFICIENT FUEL (EICAS ADVISORY)		28-41 TASK 853
284 101 00	FUEL TEMP LOW (EICAS ADVISORY)		28-43 TASK 802
284 102 00	FUEL TEMP INDICATION (EICAS STATUS)	28-20151	28-43 TASK 801
284 121 00	FUEL SCAVENGE SYS (EICAS ADVISORY)		28-22 TASK 901
284 480 41	Maintenance memo shows on the MAT: FQIS (LEFT).	23-81004 28-20001	23-91 TASK 804 28-41 TASK 802

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
284 480 41	Maintenance memo shows on the MAT: FQIS (LEFT).	(continued) 28-20005	 28-41 TASK 802
284 480 42	Maintenance memo shows on the MAT: FQIS (RIGHT).	23-81006 28-20002 28-20006	23-91 TASK 806 28-41 TASK 803 28-41 TASK 803
284 611 00	Fuel quantity indication on EICAS display: fluctuates.		28-22 TASK 853
284 612 00	Fuel Quantity Indicating: Intermittent/complete Fuel Quantity Display blanking or erratic readings.		28-41 TASK 855
284 622 00	FUEL QTY indication on FMC progress page: center tank not empty after landing.		28-22 TASK 900
284 641 01	FUEL QTY indication on FMC progress page: TOTALIZER and CALCULATED values do not agree - more than 1000 lbs after 4 hours.		28-41 TASK 825
284 642 00	FUEL QTY indication on FMC progress page: TOTALIZER and CALCULATED values do not agree - more than 1500 lbs after 6 hours.		28-41 TASK 825
284 643 00	FUEL QTY indication on FMC progress page: TOTALIZER and CALCULATED values do not agree - more than 2000 lbs after 8 hours.		28-41 TASK 825
284 644 00	FUEL QTY indication on FMC progress page: TOTALIZER and CALCULATED values do not agree - more than 2500 lbs after 10 hours.		28-41 TASK 825
284 645 00	FUEL QTY indication on FMC progress page: TOTALIZER and CALCULATED values do not agree - more than 3000 lbs after 12 hours.		28-41 TASK 825
284 646 00	FUEL QTY indication on FMC progress page: TOTALIZER and CALCULATED values do not agree - more than 3500 lbs after 14 hours.		28-41 TASK 825
284 647 00	FUEL QTY indication on FMC progress page: TOTALIZER and CALCULATED values do not agree - more than 4000 lbs after 16 hours.		28-41 TASK 825

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FAULT CODE	FAULT DESCRIPTION	MAINT MSG	GO TO FIM TASK
284 648 00	FUEL QTY indication on FMC progress page: TOTALIZER and CALCULATED values do not agree - more than 4500 lbs after 18 hours.		28-41 TASK 825

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MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
28-11019	CTR L OVRD FUEL PUMP PRESS SWITCH signal is high with CTR L OVRD FUEL PUMP OFF.	28-22 TASK 866
28-11031	Contactor (JETT PUMP L) in P100 is not in commanded position.	28-31 TASK 820
28-11032	Contactor (JETT PUMP L) in P100 is open.	28-31 TASK 834
28-11033	Contactor (CTR L OVRD FUEL PUMP) in P100 is not in commanded position.	28-22 TASK 860
28-11034	Contactor (CTR L OVRD FUEL PUMP) in P100 is open.	28-22 TASK 876
28-11035	FWD FUEL XFEED VALVE is not in commanded position.	28-22 TASK 884
28-11036	L AFT FUEL BST PUMP PRESS SWITCH signal is low with L AFT BOOST PUMP ON.	28-22 TASK 870
28-11037	L AFT FUEL BST PUMP PRESS SWITCH signal is high with L AFT BOOST PUMP OFF.	28-22 TASK 872
28-11038	L JETTISON PUMP PRESS SWITCH signal is low with L JETTISON PUMP ON.	28-31 TASK 826
28-11039	L JETTISON PUMP PRESS SWITCH signal is high with L JETTISON PUMP OFF.	28-31 TASK 828
28-11040	LEFT JETTISON ISOLATION VALVE is not in commanded position.	28-31 TASK 830
28-11041	LEFT JETTISON NOZZLE VALVE is not in commanded position.	28-31 TASK 832
28-11042	CTR L OVRD FUEL PUMP PRESS SWITCH signal is low with CTR L OVRD FUEL PUMP ON.	28-22 TASK 864
28-11043	Relay (L AFT FUEL BST PUMP CNTL) in P110 is not in commanded position.	28-22 TASK 868
28-11044	Relay (L FWD FUEL BST PUMP) in P110 is not in commanded position.	28-22 TASK 880
28-11045	Relay (L CTR FUEL PMP INHITBIT) in P110 is not in commanded position.	28-22 TASK 874
28-11047	Relay (R FWD FUEL BST PUMP CNTL) in P110 is not in commanded position.	28-22 TASK 879
28-11048	Relay (R FWD FUEL BST PMP SWTCH) in P110 is not in commanded position.	28-22 TASK 883
28-11050	R FWD BOOST PUMP PRESS SWITCH signal is low with R FWD BOOST PUMP ON.	28-22 TASK 887
28-11051	R FWD BOOST PUMP PRESS SWITCH signal is high with R FWD BOOST PUMP OFF.	28-22 TASK 889
28-11052	Relay (LEFT JETT ISOL VLV CNTL) in P110 is not in commanded position.	28-31 TASK 824
28-11053	P100 Power Panel Controller CTR L OVRD fuel pump function is idisabled.	28-22 TASK 861

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MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
28-11054	P100 Power Panel Controller Jett Pump L function is disabled.	28-31 TASK 821
28-11055	CTR L OVRD Pump Ground Fault has Tripped.	28-22 TASK 890
28-11056	L Fuel Jett Pump Ground Fault has Tripped.	28-31 TASK 836
28-12022	R AFT FUEL BOOST PUMP PRESSURE SW signal is low with R AFT FUEL BOOST PUMP ON.	28-22 TASK 871
28-12023	R AFT FUEL BOOST PUMP PRESSURE SW signal is high with R AFT FUEL BOOST PUMP OFF.	28-22 TASK 873
28-12024	R JETTISON PUMP PRESSURE SWITCH signal is low with R FUEL JET PUMP ON.	28-31 TASK 827
28-12025	R JETTISON PUMP PRESSURE SWITCH signal is high with R JET PUMP OFF.	28-31 TASK 829
28-12026	RIGHT JETTISON NOZZLE VALVE is not in commanded position.	28-31 TASK 833
28-12027	CTR R OVRD FUEL PUMP PRESSURE SWITCH signal is low with CTR R OVRD FUEL PUMP on.	28-22 TASK 865
28-12028	CTR R OVRD FUEL PUMP PRESSURE SWITCH signal is high with CTR R OVRD FUEL PUMP OFF.	28-22 TASK 867
28-12029	Contactor (JETT PUMP R) in P200 is not in commanded position.	28-31 TASK 822
28-12030	Contactor (CTR R OVRD FUEL PUMP) in P200 is not in commanded position.	28-22 TASK 862
28-12031	Right JETTISON ISOLATION VALVE is not in commanded position.	28-31 TASK 831
28-12032	Relay (R AFT FUEL BST PUMP CTRL) in P210 is not in commanded position.	28-22 TASK 869
28-12033	Relay (RIGHT JETT ISOL VALVE) in P210 is not in commanded position.	28-31 TASK 825
28-12034	Relay (R FWD FUEL BST PMP) in P210 is not in commanded position.	28-22 TASK 881
28-12035	Relay (R CTR FUEL PMP INHIBIT) in P210 is not in commanded position.	28-22 TASK 875
28-12036	CONTACTOR (R JETT PUMP ELCU) in P200 is open.	28-31 TASK 835
28-12037	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; CONTACTOR (CTR R OVRD FUEL PUMP) in P200 is open. AIMS-2, CMCF LDI 3114-BCG-00W-16; Contactor (CTR R OVRD FUEL PUMP) in P200 is open.	28-22 TASK 877

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MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
28-12038	P200 Power Panel Controller CTR R OVRD fuel pump function is disabled.	28-22 TASK 863
28-12039	AIMS-2, CMCF LDI 3114-BCG-00W-16; CTR R OVRD Pump Ground Fault has Tripped. AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; CTR R OVRD Pump Ground Fault has tripped.	28-22 TASK 891
28-12046	P200 Power Control Jett pump R function is disabled.	28-31 TASK 823
28-12047	R Fuel Jett Pump Ground Fault has Tripped.	28-31 TASK 837
28-13113	FUEL CROSSFEED VALVE AFT is not in commanded position.	28-22 TASK 885
28-13114	L FWD FUEL BOOST PUMP PRESSURE SWITCH signal is low with L FWD FUEL BOOST PUMP ON.	28-22 TASK 886
28-13115	L FWD FUEL BOOST PUMP PRESSURE SWITCH signal is high with L FWD FUEL BOOST PUMP OFF.	28-22 TASK 888
28-13120	Relay (APU ISOLATION VALVE CTRL) in P310 is not in commanded position.	28-25 TASK 813
28-13121	Relay (L MAIN TK INBD REFUEL VLV CTRL) in P310 is not in commanded position.	28-21 TASK 829
28-13122	Relay (L MAIN TK OUTBD REFUEL VLV CTRL) in P310 is not in commanded position.	28-21 TASK 831
28-13123	Relay (L FWD FUEL BST PUMP POWER) in P320 is not in commanded position.	28-22 TASK 878
28-13124	Relay (R MAIN TK INBD REFUEL VLV CTRL) in P310 is not in commanded position.	28-21 TASK 830
28-13125	Relay (R MAIN TK OUTBD REFUEL VLV CTRL) in P310 is not in commanded position.	28-21 TASK 832
28-13126	Relay (L FWD FUEL BST PUMP SWTCH) in P320 is not in commanded position.	28-22 TASK 882
28-13127	Relay (CTR L TK REFUEL VLV CTRL) in P310 is not in commanded position.	28-21 TASK 833
28-13128	Relay (CTR R TK REFUEL VLV CTRL) in P310 is not in commanded position.	28-21 TASK 834
28-14001*	Fuel Spar Valve (L Eng) is not in commanded position.	28-22 TASK 840
28-14002*	Fuel Spar Valve (R Eng) is not in commanded position.	28-22 TASK 841

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

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28-14003	AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Fuel Shutoff Valve Battery Voltage is low. AIMS-2, CMCF LDI 3114-BCG-00W-16; Fuel Shutoff Valve Battery voltage is low.	28-22 TASK 842
28-18801	Fuel Quantity Processor Unit has no output on any bus.	28-41 TASK 801
28-18840	Fuel Quantity Processor Unit has no output on System ARINC 629 Bus (left).	28-41 TASK 802
28-18860	Fuel Quantity Processor Unit has no output on System ARINC 629 Bus (right).	28-41 TASK 803
28-19422*	Relay (APU EXTERNAL SHUTDOWN) in P310 is latched.	28-25 TASK 818
28-19423	APU Fuel Shutoff Valve is failed open.	28-25 TASK 811
28-19424*	APU Fuel Shutoff Valve is failed closed.	28-25 TASK 811
28-19425	APU Fuel Isolation Valve is not in commanded position.	28-25 TASK 812
28-19426*	APU DC Fuel Pump Pressure Switch signal is low with APU DC Fuel Pump ON.	28-25 TASK 814
28-19427	APU DC Fuel Pump Pressure Switch is high with APU DC Fuel Pump Off.	28-25 TASK 815
28-19428*	Relay (APU DC FUEL PUMP CONTROL) in P310 is not in commanded position.	28-25 TASK 816
28-19429*	Relay (APU REMOTE SHUTDOWN) in P101 is not in commanded position.	28-25 TASK 817
28-19430*	Relay (APU FUEL SOV CONTROL) in P101 is not in commanded position.	28-25 TASK 819
28-19606	Fuel Quantity Processor Unit has no input from ELMS P310 Electronics Unit on System ARINC 629 Bus (right).	28-41 TASK 827
28-20001	Fuel Quantity Processor Unit has an ARINC 629 fault.	28-41 TASK 802
28-20002	Fuel Quantity Processor Unit has an ARINC 629 fault.	28-41 TASK 803
28-20005	Fuel Quantity Processor Unit has an ARINC 629 fault.	28-41 TASK 802
28-20006	Fuel Quantity Processor Unit has an ARINC 629 fault.	28-41 TASK 803
28-20007	Densitometer (Center Left Tank) signal is out of range.	28-41 TASK 808
28-20008	Densitometer (Center Left Tank) circuit is open or shorted.	28-41 TASK 809
28-20009	Tank Unit (Center Left No.1) circuit is open or shorted.	28-41 TASK 805
28-20010	Tank Unit (Center Left No.1) signal is out of range.	28-41 TASK 824
28-20011	Tank Unit (Center Left No.2) circuit is open or shorted.	28-41 TASK 805
28-20012	Tank Unit (Center Left No.2) signal is out of range.	28-41 TASK 824

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

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28-20013	Tank Unit (Center Left No.3) circuit is open or shorted.	28-41 TASK 805
28-20014	Tank Unit (Center Left No.3) signal is out of range.	28-41 TASK 824
28-20015	Tank Unit (Center Left No.4) circuit is open or shorted.	28-41 TASK 805
28-20016	Tank Unit (Center Left No.4) signal is out of range.	28-41 TASK 824
28-20017	Tank Unit (Center Left No.5) circuit is open or shorted.	28-41 TASK 805
28-20018	Tank Unit (Center Left No.5) signal is out of range.	28-41 TASK 824
28-20019	Tank Unit (Center Left No.6) circuit is open or shorted.	28-41 TASK 805
28-20020	Tank Unit (Center Left No.6) signal is out of range.	28-41 TASK 824
28-20021	Harness Assy (Center Left Tank) is not connected.	28-41 TASK 804
28-20022	Water Detector (Center Left Tank) circuit is open or shorted.	28-41 TASK 807
28-20023	Water Detector (Center Left Tank) signal is out of range.	28-41 TASK 806
28-20024	Tank Unit (Center Right No.1) circuit is open or shorted.	28-41 TASK 805
28-20025	Tank Unit (Center Right No.1) signal is out of range.	28-41 TASK 824
28-20026	Tank Unit (Center Right No.2) circuit is open or shorted.	28-41 TASK 805
28-20027	Tank Unit (Center Right No.2) signal is out of range.	28-41 TASK 824
28-20028	Tank Unit (Center Right No.3) circuit is open or shorted.	28-41 TASK 805
28-20029	Tank Unit (Center Right No.3) signal is out of range.	28-41 TASK 824
28-20030	Tank Unit (Center Right No.4) circuit is open or shorted.	28-41 TASK 805
28-20031	Tank Unit (Center Right No.4) signal is out of range.	28-41 TASK 824
28-20032	Tank Unit (Center Right No.5) circuit is open or shorted.	28-41 TASK 805
28-20033	Tank Unit (Center Right No.5) signal is out of range.	28-41 TASK 824
28-20034	Tank Unit (Center Right No.6) circuit is open or shorted.	28-41 TASK 805
28-20035	Tank Unit (Center Right No.6) signal is out of range.	28-41 TASK 824
28-20036	Harness Assy (Center Right Tank) is not connected.	28-41 TASK 804
28-20037	Water Detector (Center Right Tank) circuit is open or shorted.	28-41 TASK 807
28-20038	Water Detector (Center Right Tank) signal is out of range.	28-41 TASK 806
28-20039	Tank Unit (Center Right No.7) circuit is open or shorted.	28-41 TASK 805
28-20040	Tank Unit (Center Right No.7) signal is out of range.	28-41 TASK 824
28-20041	Tank Unit (Center Right No.8) circuit is open or shorted.	28-41 TASK 805
28-20042	Tank Unit (Center Right No.8) signal is out of range.	28-41 TASK 824
28-20045	Relay (Defuel Valve Control) in P310 is not in commanded position.	28-26 TASK 803
28-20046	Relay (Refuel Panel Door) in P310 is not in commanded position.	28-21 TASK 835

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MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
28-20049	Fuel Quantity Processor Unit has incorrect software configuration.	28-41 TASK 812
28-20050	Fuel Quantity Processor Unit has an internal fault.	28-41 TASK 801
28-20051	Fuel Quantity Processor Unit has no input from Integrated Refuel Panel on ARINC 429 Bus (Left).	28-41 TASK 813
28-20052	Fuel Quantity Processor Unit has no input from Integrated Refuel Panel on ARINC 429 Bus (Right).	28-41 TASK 813
28-20053	Integrated Refuel Panel display failed.	28-21 TASK 810
28-20054	Densitometer (Left Main Tank) circuit is open or shorted.	28-41 TASK 809
28-20055	Densitometer (Left Main Tank) signal is out of range.	28-41 TASK 808
28-20056	Harness Assy (Left Main Tank Inboard) is not connected.	28-41 TASK 804
28-20057	Harness Assy (Left Main Tank Outboard) is not connected.	28-41 TASK 804
28-20058	Tank Unit (Left Main No.1) circuit is open or shorted.	28-41 TASK 805
28-20059	Tank Unit (Left Main No.1) signal is out of range.	28-41 TASK 824
28-20060	Tank Unit (Left Main No.10) circuit is open or shorted.	28-41 TASK 805
28-20061	Tank Unit (Left Main No.10) signal is out of range.	28-41 TASK 824
28-20062	Tank Unit (Left Main No.11) circuit is open or shorted.	28-41 TASK 805
28-20063	Tank Unit (Left Main No.11) signal is out of range.	28-41 TASK 824
28-20064	Tank Unit (Left Main No.12) circuit is open or shorted.	28-41 TASK 805
28-20065	Tank Unit (Left Main No.12) signal is out of range.	28-41 TASK 824
28-20066	Tank Unit (Left Main No.13) circuit is open or shorted.	28-41 TASK 805
28-20067	Tank Unit (Left Main No.13) signal is out of range.	28-41 TASK 824
28-20068	Tank Unit (Left Main No.14) circuit is open or shorted.	28-41 TASK 805
28-20069	Tank Unit (Left Main No.14) signal is out of range.	28-41 TASK 824
28-20070	Tank Unit (Left Main No.15) circuit is open or shorted.	28-41 TASK 805
28-20071	Tank Unit (Left Main No.15) signal is out of range.	28-41 TASK 824
28-20072	Tank Unit (Left Main No.16) circuit is open or shorted.	28-41 TASK 805
28-20073	Tank Unit (Left Main No.16) signal is out of range.	28-41 TASK 824
28-20074	Tank Unit (Left Main No.17) circuit is open or shorted.	28-41 TASK 805
28-20075	Tank Unit (Left Main No.17) signal is out of range.	28-41 TASK 824
28-20076	Tank Unit (Left Main No.18) circuit is open or shorted.	28-41 TASK 805
28-20077	Tank Unit (Left Main No.18) signal is out of range.	28-41 TASK 824
28-20078	Tank Unit (Left Main No.19) circuit is open or shorted.	28-41 TASK 805
28-20079	Tank Unit (Left Main No.19) signal is out of range.	28-41 TASK 824
28-20080	Tank Unit (Left Main No.2) circuit is open or shorted.	28-41 TASK 805

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MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
28-20081	Tank Unit (Left Main No.2) signal is out of range.	28-41 TASK 824
28-20082	Tank Unit (Left Main No.20) circuit is open or shorted.	28-41 TASK 805
28-20083	Tank Unit (Left Main No.20) signal is out of range.	28-41 TASK 824
28-20084	Tank Unit (Left Main No.3) circuit is open or shorted.	28-41 TASK 805
28-20085	Tank Unit (Left Main No.3) signal is out of range.	28-41 TASK 824
28-20086	Tank Unit (Left Main No.4) circuit is open or shorted.	28-41 TASK 805
28-20087	Tank Unit (Left Main No.4) signal is out of range.	28-41 TASK 824
28-20088	Tank Unit (Left Main No.5) circuit is open or shorted.	28-41 TASK 805
28-20089	Tank Unit (Left Main No.5) signal is out of range.	28-41 TASK 824
28-20090	Tank Unit (Left Main No.6) circuit is open or shorted.	28-41 TASK 805
28-20091	Tank Unit (Left Main No.6) signal is out of range.	28-41 TASK 824
28-20092	Tank Unit (Left Main No.7) circuit is open or shorted.	28-41 TASK 805
28-20093	Tank Unit (Left Main No.7) signal is out of range.	28-41 TASK 824
28-20094	Tank Unit (Left Main No.8) circuit is open or shorted.	28-41 TASK 805
28-20095	Tank Unit (Left Main No.8) signal is out of range.	28-41 TASK 824
28-20096	Tank Unit (Left Main No.9) circuit is open or shorted.	28-41 TASK 805
28-20097	Tank Unit (Left Main No.9) signal is out of range.	28-41 TASK 824
28-20098	Water Detector (Left Main Tank) circuit is open or shorted.	28-41 TASK 807
28-20099	Water Detector (Left Main Tank) signal is out of range.	28-41 TASK 806
28-20100	Fuel Quantity Processor Unit A/B Market program pins are incorrect.	28-41 TASK 814
28-20101	Fuel Quantity Processor Unit Lb/Kg program pins are incorrect.	28-41 TASK 815
28-20102	Densitometer (Right Main Tank) circuit is open or shorted.	28-41 TASK 809
28-20103	Densitometer (Right Main Tank) signal is out of range.	28-41 TASK 808
28-20104	Harness Assy (Right Main Tank Inboard) is not connected.	28-41 TASK 804
28-20105	Harness Assy (Right Main Tank Outboard) is not connected.	28-41 TASK 804
28-20106	Tank Unit (Right Main No.1) circuit is open or shorted.	28-41 TASK 805
28-20107	Tank Unit (Right Main No.1) signal is out of range.	28-41 TASK 824
28-20108	Tank Unit (Right Main No.10) circuit is open or shorted.	28-41 TASK 805
28-20109	Tank Unit (Right Main No.10) signal is out of range.	28-41 TASK 824
28-20110	Tank Unit (Right Main No.11) circuit is open or shorted.	28-41 TASK 805
28-20111	Tank Unit (Right Main No.11) signal is out of range.	28-41 TASK 824
28-20112	Tank Unit (Right Main No.12) circuit is open or shorted.	28-41 TASK 805
28-20113	Tank Unit (Right Main No.12) signal is out of range.	28-41 TASK 824
28-20114	Tank Unit (Right Main No.13) circuit is open or shorted.	28-41 TASK 805

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MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
28-20115	Tank Unit (Right Main No.13) signal is out of range.	28-41 TASK 824
28-20116	Tank Unit (Right Main No.14) circuit is open or shorted.	28-41 TASK 805
28-20117	Tank Unit (Right Main No.14) signal is out of range.	28-41 TASK 824
28-20118	Tank Unit (Right Main No.15) circuit is open or shorted.	28-41 TASK 805
28-20119	Tank Unit (Right Main No.15) signal is out of range.	28-41 TASK 824
28-20120	Tank Unit (Right Main No.16) circuit is open or shorted.	28-41 TASK 805
28-20121	Tank Unit (Right Main No.16) signal is out of range.	28-41 TASK 824
28-20122	Tank Unit (Right Main No.17) circuit is open or shorted.	28-41 TASK 805
28-20123	Tank Unit (Right Main No.17) signal is out of range.	28-41 TASK 824
28-20124	Tank Unit (Right Main No.18) circuit is open or shorted.	28-41 TASK 805
28-20125	Tank Unit (Right Main No.18) signal is out of range.	28-41 TASK 824
28-20126	Tank Unit (Right Main No.19) circuit is open or shorted.	28-41 TASK 805
28-20127	Tank Unit (Right Main No.19) signal is out of range.	28-41 TASK 824
28-20128	Tank Unit (Right Main No.2) circuit is open or shorted.	28-41 TASK 805
28-20129	Tank Unit (Right Main No.2) signal is out of range.	28-41 TASK 824
28-20130	Tank Unit (Right Main No.20) circuit is open or shorted.	28-41 TASK 805
28-20131	Tank Unit (Right Main No.20) signal is out of range.	28-41 TASK 824
28-20132	Tank Unit (Right Main No.3) circuit is open or shorted.	28-41 TASK 805
28-20133	Tank Unit (Right Main No.3) signal is out of range.	28-41 TASK 824
28-20134	Tank Unit (Right Main No.4) circuit is open or shorted.	28-41 TASK 805
28-20135	Tank Unit (Right Main No.4) signal is out of range.	28-41 TASK 824
28-20136	Tank Unit (Right Main No.5) circuit is open or shorted.	28-41 TASK 805
28-20137	Tank Unit (Right Main No.5) signal is out of range.	28-41 TASK 824
28-20138	Tank Unit (Right Main No.6) circuit is open or shorted.	28-41 TASK 805
28-20139	Tank Unit (Right Main No.6) signal is out of range.	28-41 TASK 824
28-20140	Tank Unit (Right Main No.7) circuit is open or shorted.	28-41 TASK 805
28-20141	Tank Unit (Right Main No.7) signal is out of range.	28-41 TASK 824
28-20142	Tank Unit (Right Main No.8) circuit is open or shorted.	28-41 TASK 805
28-20143	Tank Unit (Right Main No.8) signal is out of range.	28-41 TASK 824
28-20144	Tank Unit (Right Main No.9) circuit is open or shorted.	28-41 TASK 805
28-20145	Tank Unit (Right Main No.9) signal is out of range.	28-41 TASK 824
28-20146	Water Detector (Right Main Tank) circuit is open or shorted.	28-41 TASK 807
28-20147	Water Detector (Right Main Tank) signal is out of range.	28-41 TASK 806
28-20148	Multiple Tank Units in Center Fuel Tank are inoperative.	28-41 TASK 821

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MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
28-20149	Multiple Tank Units in Left Main Fuel Tank are inoperative.	28-41 TASK 816
28-20150	Multiple Tank Units in Right Main Fuel Tank are inoperative.	28-41 TASK 822
28-20151	Fuel Temperature Sensor signal is failed.	28-43 TASK 801
28-20152	Valve (Left Main Tank Inboard Refuel) is not in commanded position.	28-21 TASK 801
28-20153	Valve (Center Left Tank Refuel) is not in commanded position.	28-21 TASK 812
28-20154	Valve (Right Main Tank Inboard Refuel) is not in commanded position.	28-21 TASK 813
28-20155	Valve (Left Main Tank Outboard Refuel) is not in commanded position.	28-21 TASK 811
28-20156	Valve (Center Right Tank Refuel) is not in commanded position.	28-21 TASK 815
28-20157	Valve (Right Main Tank Outboard Refuel) is not in commanded position.	28-21 TASK 814
28-20161	Tank Unit (Center Right No.9) circuit is open or shorted.	28-41 TASK 805
28-20162	Tank Unit (Center Right No.9) signal is out of range.	28-41 TASK 824
28-20163	Tank Unit (Center Right No.10) circuit is open or shorted.	28-41 TASK 805
28-20164	Tank Unit (Center Right No.10) signal is out of range.	28-41 TASK 824
28-20165	Tank Unit (Center Left No.7) circuit is open or shorted.	28-41 TASK 805
28-20166	Tank Unit (Center Left No.7) signal is out of range.	28-41 TASK 824
28-20167	Tank Unit (Center Left No.8) circuit is open or shorted.	28-41 TASK 805
28-20168	Tank Unit (Center Left No.8) signal is out of range.	28-41 TASK 824
28-20169	Tank Unit (Center Left No.9) circuit is open or shorted.	28-41 TASK 805
28-20170	Tank Unit (Center Left No.9) signal is out of range.	28-41 TASK 824
28-20171	Tank Unit (Center Left No.10) circuit is open or shorted.	28-41 TASK 805
28-20172	Tank Unit (Center Left No.10) signal is out of range.	28-41 TASK 824
28-20173	Tank Unit (Right Main No.21) circuit is open or shorted.	28-41 TASK 805
28-20174	Tank Unit (Right Main No.21) signal is out of range.	28-41 TASK 824
28-20175	Tank Unit (Right Main No.22) circuit is open or shorted.	28-41 TASK 805
28-20176	Tank Unit (Right Main No.22) signal is out of range.	28-41 TASK 824
28-20177	Tank Unit (Right Main No.23) circuit is open or shorted.	28-41 TASK 805
28-20178	Tank Unit (Right Main No.23) signal is out of range.	28-41 TASK 824
28-20179	Tank Unit (Right Main No.24) circuit is open or shorted.	28-41 TASK 805
28-20180	Tank Unit (Right Main No.24) signal is out of range.	28-41 TASK 824
28-20181	Tank Unit (Right Main No.25) circuit is open or shorted.	28-41 TASK 805
28-20182	Tank Unit (Right Main No.25) signal is out of range.	28-41 TASK 824
28-20183	Tank Unit (Right Main No.26) circuit is open or shorted.	28-41 TASK 805

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MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
28-20184	Tank Unit (Right Main No.26) signal is out of range.	28-41 TASK 824
28-20185	Tank Unit (Right Main No.27) circuit is open or shorted.	28-41 TASK 805
28-20186	Tank Unit (Right Main No.27) signal is out of range.	28-41 TASK 824
28-20187	Tank Unit (Right Main No.28) circuit is open or shorted.	28-41 TASK 805
28-20188	Tank Unit (Right Main No.28) signal is out of range.	28-41 TASK 824
28-20189	Tank Unit (Left Main No.21) circuit is open or shorted.	28-41 TASK 805
28-20190	Tank Unit (Left Main No.21) signal is out of range.	28-41 TASK 824
28-20191	Tank Unit (Left Main No.22) circuit is open or shorted.	28-41 TASK 805
28-20192	Tank Unit (Left Main No.22) signal is out of range.	28-41 TASK 824
28-20193	Tank Unit (Left Main No.23) circuit is open or shorted.	28-41 TASK 805
28-20194	Tank Unit (Left Main No.23) signal is out of range.	28-41 TASK 824
28-20195	Tank Unit (Left Main No.24) circuit is open or shorted.	28-41 TASK 805
28-20196	Tank Unit (Left Main No.24) signal is out of range.	28-41 TASK 824
28-20197	Tank Unit (Left Main No.25) circuit is open or shorted.	28-41 TASK 805
28-20198	Tank Unit (Left Main No.25) signal is out of range.	28-41 TASK 824
28-20199	Tank Unit (Left Main No.26) circuit is open or shorted.	28-41 TASK 805
28-20200	Tank Unit (Left Main No.26) signal is out of range.	28-41 TASK 824
28-20201	Tank Unit (Left Main No.27) circuit is open or shorted.	28-41 TASK 805
28-20202	Tank Unit (Left Main No.27) signal is out of range.	28-41 TASK 824
28-20203	Tank Unit (Left Main No.28) circuit is open or shorted.	28-41 TASK 805
28-20204	Tank Unit (Left Main No.28) signal is out of range.	28-41 TASK 824
28-20303	AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Fuel Quantity Processor Unit tank Configuration Program PINS are Invalid. AIMS-2, CMCF LDI 3114-BCG-00W-16; Fuel Quantity Processor Unit tank Configuration Program PINS are invalid.	28-41 TASK 828
28-22001	Relay (L Override Pump CTRL) is not in commanded position.	28-22 TASK 892
28-22003	Relay (R Override Pump CTRL) is not in commanded position.	28-22 TASK 894
28-28010	Air Data Inertial Reference Unit acceleration signals are out of range.	28-41 TASK 823

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MAINT MESSAGE	MESSAGE TEXT	GO TO FIM TASK
28-29401	AIMS-2, CMCF LDI 3114-BCG-00W-16; Fuel Quantity Processor Unit has no input from Any LRU on System ARINC 629 Bus (left). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Fuel Quantity Processor Unit has no input from any LRU on System ARINC 629 Bus (left).	28-41 TASK 802
28-29601	AIMS-2, CMCF LDI 3114-BCG-00W-16; Fuel Quantity Processor Unit has no input from Any LRU on System ARINC 629 Bus (right). AIMS-1, CPM/Comm OPS S/W 3166-HNP-002-11; AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Fuel Quantity Processor Unit has no input from any LRU on System ARINC 629 Bus (right).	28-41 TASK 803
28-31001	AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Relay (R Fuel Jettison Pump CTRL) is not in commanded position. AIMS-2, CMCF LDI 3114-BCG-00W-16; Relay (Right Fuel Jettison Pump CTRL) is not in commanded position.	28-31 TASK 840
28-31003	AIMS-2, CMCF LDI 3111-BCG-00W-13; AIMS-2, CMCF LDI 3116-BCG-00W-14; AIMS-2, CMCF LDI 3117-BCG-00W-15; Relay (L Fuel Jettison Pump CTRL) is not in commanded position. AIMS-2, CMCF LDI 3114-BCG-00W-16; Relay (Left Fuel Jettison CTRL) is not in commanded position.	28-31 TASK 838
28-69405	Fuel Quantity Processor Unit has no input from ELMS P310 Electronics Unit on System ARINC 629 Bus (left).	28-41 TASK 826

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801. Fuel Leakage at Wing Lower Surface - Fault Isolation

A. Fault Isolation Procedure

- (1) For fuel leaks in the wing lower surface, front or rear spar structure and the side-of-body area, do this task: Analysis of the Fuel Leak Type, AMM TASK 28-11-00-300-804 or, do this task: Analysis of Fuel Leak Cause, AMM TASK 28-11-00-200-801 or, do this task: Fuel Leak Detection Procedures, AMM TASK 28-11-00-790-801.
 - (a) To repair a component do the applicable removal/installation procedure.
 - (b) To repair a structural fuel leak, do this task: Repair of the Secondary Fuel Barrier Sealant, AMM TASK 28-11-00-300-803 or, do this task: Repair of Sealant Leaks in the Fuel Tank Structure, AMM TASK 28-11-00-300-802.
- (2) For fuel leaks at components on the wing spar, refer to the applicable removal/installation procedure for the applicable component.

————— **END OF TASK** —————

802. Fuel Leakage at APU Shroud Drain Mast - Fault Isolation

A. Initial Evaluation

- (1) Examine the APU shroud drain mast for five minutes.
- (2) If there is no fuel leakage or if the fuel leakage rate is less than one drop per minute, then the APU fuel line is OK.
- (3) If the fuel leakage rate is more than one drop per minute, then continue.
- (4) Do these steps to do a leak check of the APU fuel line while it is pressurized:
 - (a) Make sure that these circuit breakers are closed:

APU Auxiliary Panel, P49

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C49602	APUC 2

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
B	6	C49601	APUC 1

- (b) Make sure the left main fuel tank has a minimum of 800 pounds (400 kilograms) of fuel (AMM TASK 12-11-01-650-801).
- (c) With the APU fuel line pressurized, examine the APU shroud drain mast for 30 minutes to do a check for leakage.
- (d) If the fuel leakage rate is less than 60 drops (3 milliliters or 0.1 fluid ounce) in 30 minutes, then do these steps:
 - 1) Set the APU start switch, on the Overhead Panel P5, back to the OFF position.
 - 2) Continue with normal operation of the APU in service.

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28-11 TASKS 801-802

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- 3) Do this pressure check of the APU fuel line every day until you repair the APU fuel line or replace it.
- 4) When it is possible, do the Fault Isolation procedure below.
- (e) If the fuel leakage rate is more than 60 drops (3 milliliters or 0.1 fluid ounce) in 30 minutes, then deactivate the APU until the fuel line is repaired. To do this, do this task: APU Preservation - Mild Environment, AMM TASK 49-11-00-620-801.
 - 1) When it is possible, do the Fault Isolation procedure below.

B. Fault Isolation

- (1) Make sure the landing gear downlock pins for the nose and main landing gear are installed (AMM TASK 32-00-30-480-801).



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND MOVE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) For fuel leakage at the APU shroud drain mast, fuel must be leaking from the APU fuel supply line somewhere between the APU firewall bulkhead fitting and the forward wall of the aft cargo compartment.
- (4) To get access to the APU fuel supply line and connection fittings open the applicable access panels.
- (5) Make sure there is more than 800 LB (400 KG) of fuel in the left main fuel tank (AMM TASK 12-11-01-650-801).
- (6) Make sure the APU start switch on the overhead panel P5, is in the off position.
- (7) Attach a DO-NOT-OPERATE tag to the APU start switch.
- (8) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (9) Move the manual override handle on the APU fuel shutoff valve to the OPEN position.
- (10) Push the LEFT FWD PUMP switchlight, on the overhead panel P5, to the ON position.

NOTE: This step pressurizes the APU fuel supply line.
- (11) Make sure the APU fuel pressure indication, on the FUEL maintenance page, shows PRESS for the APU fuel.
- (12) Look for leakage at the supply line and/or connection fittings.
- (13) Do this check at each APU fuel supply line connection until you find the leak.
- (14) When you find the leak, do these steps:
 - (a) Push the LEFT FWD PUMP switchlight, on the overhead panel P5, to the OFF position.

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- (b) Move the manual override handle on the APU fuel shutoff valve to the OPEN position.
- (c) Replace the supply line and/or repair the connection as follows:
 - 1) Replace the APU Fuel Supply Line (Left Main Tank, Left Center Fuel Tank and Wing Center Fuel Section) if it is necessary.

These are the tasks:

APU Fuel Supply Line (Left Main Tank, Left Center Fuel Tank and Wing Center Fuel Section) - Removal, AMM TASK 28-25-06-000-801,

APU Fuel Supply Line (Left Main Tank, Left Center Fuel Tank and Wing Center Fuel Section) - Installation, AMM TASK 28-25-06-400-801.
 - 2) Replace the APU Fuel Supply Line and Shroud (Wing Center Fuel Section to the Aft Pressure Bulkhead) if it is necessary.

These are the tasks:

APU Fuel Supply Line and Shroud (Wing Center Fuel Section to the Aft Wheel Well Bulkhead) - Removal, AMM TASK 28-25-06-000-802,

APU Fuel Supply Line and Shroud (Wing Center Fuel Section to Aft Wheel Well Bulkhead) - Installation, AMM TASK 28-25-06-400-802.
 - 3) Replace the APU Fuel Supply Line and Shroud (Aft Pressure Bulkhead to the APU Firewall) if it is necessary.

These are the tasks:

APU Fuel Supply Line and Shroud (Aft Pressure Bulkhead to the APU Firewall) - Removal, AMM TASK 28-25-06-000-803,

APU Fuel Supply Line and Shroud (Aft Pressure Bulkhead to the APU Firewall) - Installation, AMM TASK 28-25-06-400-803.
 - 4) Replace the APU Fuel Shroud Drain Line if it is necessary.

These are the tasks:

APU Fuel Shroud Drain Line - Removal, AMM TASK 28-25-06-000-804,

APU Fuel Shroud Drain Line - Installation, AMM TASK 28-25-06-400-804.
- (15) Close all of the access panels.
- (16) Do the Repair Confirmation procedure below.

C. Repair Confirmation

- (1) Examine the APU shroud drain mast for five minutes.
 - (a) If there is no fuel leakage or if the fuel leakage rate is less than one drop per minute, then you corrected the fault.

————— END OF TASK —————

804. Fuel Leakage at Left Engine Strut - Fault Isolation

A. Procedure

- (1) For a fuel leaks in the engine strut area, do these steps:
 - (a) Get access to the fuel line in the strut. To get access, do this task: Fuel Line, Fitting and Coupling - Removal, AMM TASK 28-22-15-000-802-001.
 - (b) Do these steps to pressurize the fuel line in the strut.

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- 1) Put the left engine CUTOFF switch, on the P10 Control Stand, to the RUN position.
NOTE: This step will open the left fuel spar valve.
- 2) Put the left FWD PUMP switch, on the P5 overhead panel, to the ON position.
NOTE: This step will pressurize the fuel line.
- (c) Do a visual inspection for fuel line leaks in the strut area.
- (d) Do these steps to remove pressure from the fuel line:
 - 1) Put the left FWD PUMP switch, on the P5 overhead panel, to the OFF position.
 - 2) Put the left engine CUTOFF switch, on the P10 Control Stand, to the CUTOFF position.
NOTE: This step will close the left fuel spar valve.
- 3) To remove the pressure and the fuel from the fuel line in the strut, keep the left fuel spar valve in the closed position and removed the drain for the engine fuel pump. Refer to this task to remove the fuel (AMM TASK 28-22-15-790-802-001).
NOTE: It is not necessary to defuel the fuel tanks to repair fuel lines in the strut area. If you keep the fuel spar valve closed fuel will not leak from the fuel tank.
- (e) Repair or replace leaking or damaged fuel lines and fittings.
- (f) To install the fuel lines and fittings, do this task: Fuel Line, Fitting and Coupling - Installation, AMM TASK 28-22-15-400-802-001.
- (g) To test the fuel line in the strut after repairs, do this task: Engine Fuel Feed Manifold, Spar and Crossfeed Valve - Leak Check, AMM TASK 28-22-15-790-802-001.
NOTE: This procedure can also be used to pressurize the fuel line in the strut to help isolate leaks.

————— END OF TASK —————

805. Fuel Leakage at Right Engine Strut - Fault Isolation

A. Procedure

- (1) For a fuel leaks in the engine strut area, do these steps:
 - (a) Get access to the fuel line in the strut. To get access, do this task: Fuel Line, Fitting and Coupling - Removal, AMM TASK 28-22-15-000-802-001.
 - (b) Do these steps to pressurize the fuel line in the strut.
 - 1) Put the right engine CUTOFF switch, on the P10 Control Stand, to the RUN position.
NOTE: This step will open the right fuel spar valve.
 - 2) Put the right FWD PUMP switch, on the P5 overhead panel, to the ON position.
NOTE: This step will pressurize the fuel line.
 - (c) Do a visual inspection for fuel line leaks in the strut area.
 - (d) Do these steps to remove pressure from the fuel line:
 - 1) Put the right FWD PUMP switch, on the P5 overhead panel, to the OFF position.
 - 2) Put the right engine CUTOFF switch, on the P10 Control Stand, to the CUTOFF position.
NOTE: This step will close the applicable fuel spar valve.

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- 3) To remove the pressure and the fuel from the fuel line in the strut, keep the right fuel spar valve in the closed position and removed the drain for the engine fuel pump. Refer to this task to remove the fuel (AMM TASK 28-22-15-790-802-001).

NOTE: It is not necessary to defuel the fuel tanks to repair fuel lines in the strut area. If you keep the fuel spar valve closed fuel will not leak from the fuel tank.

- (e) Repair or replace leaking or damaged fuel lines and fittings.
- (f) To install the fuel lines and fittings, do this task: Fuel Line, Fitting and Coupling - Installation, AMM TASK 28-22-15-400-802-001.
- (g) To test the fuel line in the strut after repairs, do this task: Engine Fuel Feed Manifold, Spar and Crossfeed Valve - Leak Check, AMM TASK 28-22-15-790-802-001.

NOTE: This procedure can also be used to pressurize the fuel line in the strut to help isolate leaks.

————— **END OF TASK** —————

806. Hydraulic Fluid Leakage in Fuel Tank - Fault Isolation

A. Description

- (1) Hydraulic fluid can get into the fuel tanks through leakage in the hydraulic system. Hydraulic fluid heat exchangers are in the left and right main tanks, and the center tank has several hydraulic lines. A hydraulic fluid leak is more likely to occur with the heat exchangers in the main tanks, than with the hydraulic lines in the center tank.
- (2) Hydraulic fluid stays in solution in fuel at concentrations up to 5 percent at temperatures more than -22°F (-30°C).

B. Possible Causes

- (1) Leakage in the hydraulic system.

C. Related Data

- (1) SSM 29-00-00

D. Initial Evaluation

- (1) Review the maintenance records and find the maximum hydraulic fluid contamination level reached in the fuel by dividing the quantity of hydraulic fluid lost from the hydraulic system by the quantity of fuel the hydraulic fluid leaked into.

NOTE: If the fuel leak occurred for more than one flight, use the smallest fuel load during the affected flights as the fuel quantity.

- (2) Find how long the airplane operated with the contaminated fuel.
- (3) A fuel sample can be used as an option to fuel tank entry to find if there is fuel tank contamination.
 - (a) Get a fuel sample from the applicable tank(s): Fuel Tank Sump Drain Valve - Water Removal/Sampling, AMM TASK 12-11-02-680-801
 - (b) Send the samples to a certified testing facility to determine if hydraulic fluid is present.
 - (c) If no hydraulic fluid is found, do this task: Reservoir Fluid Quantity Problems - Fault Isolation, 29-11 TASK 960.
 - (d) If hydraulic fluid is found, do the Fault Isolation procedure below.

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- (4) Defuel the applicable fuel tank(s) to isolate the hydraulic leak (AMM TASK 28-26-00-650-801).

NOTE: Hydraulic fluid heat exchangers are found in the left and right main tanks, and the center tank has several hydraulic lines. A hydraulic leak is more likely to occur with the heat exchangers in the main tanks, than with the hydraulic lines in the center tank.



CAREFULLY DO ALL OF THE SAFETY PROCEDURES TO PREPARE TO GO INTO THE FUEL TANK. IF YOU DO NOT OBEY THE SAFETY PROCEDURES, YOU CAN CAUSE AN EXPLOSION. AN EXPLOSION WILL CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (5) Do this task: Purging and Fuel Tank Entry, AMM TASK 28-11-00-010-801.
- (6) Go into the applicable fuel tank.
- (7) Inspect the hydraulic lines and fittings in each applicable fuel tank for evidence of a hydraulic leak.
- (a) If it is necessary, remove all traces of hydraulic fluid from the fuel tank.
 - (b) If you find evidence of a hydraulic leak, then do the Fault Isolation procedure below.
 - (c) If there is no indication of a hydraulic leak, then do this task: Reservoir Fluid Quantity Problems - Fault Isolation, 29-11 TASK 960.

E. Fault Isolation Procedure

- (1) Repair the hydraulic fluid leak.

NOTE: Hydraulic fluid stays in solution in fuel at concentrations up to 5 percent at temperatures more than -22°F (-30°C). The affect of hydraulic fluid contamination is dependant upon the concentration of the hydraulic fluid and the time of exposure.

- (2) Contact the applicable engine manufacturer with the calculated hydraulic fluid contamination level and length of time the airplane was operated with the leak to get further evaluation of specific condition and case-by-case support.
- (3) Clean out the contaminated fuel tank: AMM TASK 05-51-43-200-801.
- (4) Refuel the fuel system with uncontaminated fuel (AMM TASK 12-11-01-650-801).
- NOTE:** Hydraulic fluid contaminations of less than 1 parts per million will not cause damage to the airplane fuel system seals or the fuel tank sealant for time periods less than three days. If the contamination is more than 1 parts per million or if the hydraulic fluid was in the fuel tank for more than three days, the some seal in fuel system and fuel pumps could be affected.
- (5) If the contamination was more than 1 parts per million or if the hydraulic fluid was in the fuel tank for more than three days, do this task: Engine Fuel Feed Manifold, Spar and Crossfeed Valve - Leak Check, AMM TASK 28-22-15-790-802-001.
- (6) If the fuel sample is confirmed to have contamination above 500 parts per million, do this task Fuel Supply System (with Hydraulic Fluid) Contamination Cleaning, AMM TASK 73-00-00-170-801-H00.
- (7) If the hydraulic fluid leak is in the left main tank, the APU is affected if it operated during the time period when the hydraulic fluid leakage occurred.
- NOTE:** The left main tank supplies fuel to the APU.
- (8) If the APU is affected, do this task: APU Operates With Hydraulic Fluid-Contamination Fuel - Fault Isolation, 49-10 TASK 834.

————— **END OF TASK** —————

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801. L MAIN TK INBD REFUEL VALVE Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20152.

B. Initial Evaluation

- (1) Do these steps to operate the refuel valve:
- (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY



WARNING

DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (c) Open this access panel to get access to the integrated refuel panel (IRP):
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (d) Connect a fueling source to the refuel adapters to prepare for refueling. To prepare for refueling, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
- (e) Push and release the two indication lights for the left main fuel tank, on the IRP, to make sure the lights operate.
- NOTE: This step makes sure the light bulbs are OK.
- (f) Apply fuel pressure from the fueling source.
- (g) Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
- (h) Make sure the indication lights come on, for the left main tank.
- (i) Put the refuel valve control switch to the CLOSED position.
- (j) Make sure the indication lights go off, for the left main tank

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- (2) If the inboard refuel valve does not operate correctly or the maintenance message continues to show, do the Fault Isolation Procedure below.
- (3) If the inboard refuel valve operates correctly and the maintenance message does not show, there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check for 28V DC at the electrical connector for the inboard refuel valve control unit, V28107.
 - (a) Get access to the electrical connector (AMM TASK 28-21-03-000-801).
 - (b) Remove the electrical connector DV28107 from the refuel valve (WDM 28-21-21).
 - (c) Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
 - 1) Do a check for 28V DC at pin 2, on the connector DV28107.
 - (d) Put the refuel valve control switch to the CLOSED position.
 - 1) Make sure 28V DC does not show at pin 2, on the connector DV28107.
 - 2) Do a wiring check to make sure there is continuity between pin 1, on connector DV28107 and structure ground.
 - 3) Do a wiring check to make sure there is continuity between pin 4, on connector DV28107 and structure ground.
 - 4) Do a wiring check to make sure there is continuity between pin 3, on connector DV28107 and structure ground.
 - (e) If the wiring is not OK, repair the wiring.
 - (f) If the wiring is OK, do these steps:
 - 1) Remove fueling pressure from the refuel manifold.
 - 2) Replace the refuel valve control unit. To replace it,
These are the tasks:
Refuel Valve Control Unit - Removal, AMM TASK 28-21-03-000-801,
Refuel Valve Control Unit - Installation, AMM TASK 28-21-03-400-801.
- (2) Do the Initial Evaluation steps again to make sure you corrected the problem.

————— END OF TASK —————

809. Fuel Quantity Power Transfer Relay (Not In Commanded Position) - Fault Isolation

A. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

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Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	11	C28005	RFLNG DR LTS
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	11	C28623	RFLNG QTY



WARNING

DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (c) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (d) Wait 15 seconds.
 - (e) Close this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (f) If the MAT shows ACTIVE or LATCHED for the maintenance message, do the Fault Isolation procedure below.
 - (g) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) Replace the fuel quantity power transfer relay K28006, in the standby power management panel (SPMP) P310 (WDM 28-21-11).

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (b) Wait 15 seconds.
 - (c) Close this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or the maintenance message does not show), you corrected the fault.
 - (e) If the MAT shows as ACTIVE for the maintenance message, then continue.

- (2) Do a check of the ELMS Signal Interface Unit 2 (SIU2), M24513, in the SPMP P310.

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This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (b) Wait 15 seconds.

- (c) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do these steps to check the relay wiring (WDM 28-21-11):

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

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	11	C28005	RFLNG DR LTS
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	11	C28623	RFLNG QTY

- (b) Remove the Fuel Quantity Power Transfer Relay K28006, from the SPMP P310.

- (c) Remove the Signal Interface Unit 2 (SIU2), M24513, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.

- (d) Do these steps to check the relay control wiring:

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

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

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Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	11	C28005	RFLNG DR LTS
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	11	C28623	RFLNG QTY

- 2) Make sure this access panel is open:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- 3) Make sure there is continuity between pin X2, on connector DK28006 and structure ground.
- 4) Make sure there is 28V DC at pin X1, on connector DK28006.
- 5) Make sure 28V DC shows at these pins; A3, A1, B3, B1, and C1, on connector DK28006.
- 6) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	11	C28005	RFLNG DR LTS
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	11	C28623	RFLNG QTY

- (e) Do these steps to check the relay indication wiring:
- 1) Do a continuity check between these pins on relay connector DK28006 and connector DM24513A, on the SPMP P310:

DK28006	DM24513A
pin C2	pin 27

- (f) If there are wiring problems, do these steps:
- 1) Repair the wiring.
- 2) Install the Signal Interface Unit 2 (SIU2), M24513, from the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (g) Install the Fuel Quantity Power Transfer Relay K28006, in the SPMP P310.

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

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	11	C28005	RFLNG DR LTS
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	11	C28623	RFLNG QTY

- (i) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (j) Wait 15 seconds.

- (k) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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

————— **END OF TASK** —————

810. Integrated Refuel Panel Display - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20053.

B. Possible Cause

- (1) Defective solder joints have been reported on some integrated refueling panel (IRP) printed circuit boards. The solder joint cracks that can cause blanking of the IRP.

C. Initial Evaluation



DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (1) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
(2) To get access to the integrated refuel panel (IRP) P28.

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Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

D. Fault Isolation Procedure

- (1) Replace the integrated refuel panel (IRP).
 - (a) These are the tasks:
Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801,
Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

811. L MAIN TK OUTBD REFUEL VALVE Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20155.

B. Initial Evaluation

- (1) Do these steps to operate the refuel valve:
 - (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2

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Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY



DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (c) To get access to the integrated refuel panel (IRP).

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (d) Connect a fueling source to the refuel adapters to prepare for refueling. To prepare for refueling, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
 - (e) Push and release the two indication lights for the left main fuel tank, on the IRP, to make sure the lights operate.
NOTE: This step makes sure the light bulbs are OK.
 - (f) Apply fuel pressure from the fueling source.
 - (g) Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
 - (h) Make sure the indication lights come on, for the left main tank.
 - (i) Put the refuel valve control switch to the CLOSED position.
 - (j) Make sure the indication lights go off, for the left main tank
- (2) If the outboard refuel valve does not operate correctly or the maintenance message continues to show, do the Fault Isolation Procedure below.
 - (3) If the outboard refuel valve operates correctly and the maintenance message does not show, there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check for 28V DC at the electrical connector for the outboard refuel valve control unit, V28108.
 - (a) Get access to the electrical connector (AMM TASK 28-21-03-000-801).
 - (b) Remove the electrical connector DV28108 from the refuel valve (WDM 28-21-21).
 - (c) Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
 - 1) Do a check for 28V DC at pin 2, on the connector DV28108.
 - (d) Put the refuel valve control switch to the CLOSED position.
 - 1) Make sure 28V DC does not show at pin 2, on the connector DV28108.

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- 2) Do a wiring check to make sure there is continuity between pin 1, on connector DV28108 and structure ground.
 - 3) Do a wiring check to make sure there is continuity between pin 4, on connector DV28108 and structure ground.
 - 4) Do a wiring check to make sure there is continuity between pin 3, on connector DV28108 and structure ground.
- (e) If the wiring is not OK, repair the wiring.
- (f) If the wiring is OK, do these steps:
- 1) Remove fueling pressure from the refuel manifold.
 - 2) Replace the refuel valve control unit. To replace it,
These are the tasks:
Refuel Valve Control Unit - Removal, AMM TASK 28-21-03-000-801,
Refuel Valve Control Unit - Installation, AMM TASK 28-21-03-400-801.
- (2) Do the Initial Evaluation steps again to make sure you corrected the problem.

— END OF TASK —

812. LEFT CENTER TANK REFUEL VALVE Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20153.

B. Initial Evaluation

- (1) Do these steps to operate the refuel valve:
- (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY



WARNING

DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.

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- (c) To get access to the integrated refuel panel (IRP).

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (d) Connect a fueling source to the refuel adapters to prepare for refueling. To prepare for refueling, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
- (e) Push and release the two indication lights for the center fuel tank, on the IRP, to make sure the lights operate.

NOTE: This step makes sure the light bulbs are OK.

- (f) Apply fuel pressure from the fueling source.
- (g) Put the refuel valve control switch (on the IRP) for the center fuel tank, to the OPEN position.
- (h) Make sure the indication lights come on, for the center fuel tank.
- (i) Put the refuel valve control switch to the CLOSED position.
- (j) Make sure the indication lights go off, for the center fuel tank
- (2) If the left center refuel valve does not operate correctly or the maintenance message continues to show, do the Fault Isolation Procedure below.
- (3) If the left center refuel valve operates correctly and the maintenance message does not show, there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check for 28V DC at the electrical connector for the left center refuel valve control unit, V28305.
- (a) Get access to the electrical connector (AMM TASK 28-21-03-000-801).
- (b) Remove the electrical connector DV28305 from the refuel valve (WDM 28-21-21).
- (c) Put the refuel valve control switch (on the IRP) for the center fuel tank, to the OPEN position.
- 1) Do a check for 28V DC at pin 2, on the connector DV28305.
- (d) Put the refuel valve control switch to the CLOSED position.
- 1) Make sure 28V DC does not show at pin 2, on the connector DV28305.
- 2) Do a wiring check to make sure there is continuity between pin 1, on connector DV28305 and structure ground.
- 3) Do a wiring check to make sure there is continuity between pin 4, on connector DV28305 and structure ground.
- 4) Do a wiring check to make sure there is continuity between pin 3, on connector DV28305 and structure ground.
- (e) If the wiring is not OK, repair the wiring.
- (f) If the wiring is OK, do these steps:
- 1) Remove fueling pressure from the refuel manifold.
- 2) Replace the refuel valve control unit. To replace it,
- These are the tasks:
- Refuel Valve Control Unit - Removal, AMM TASK 28-21-03-000-801,

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Refuel Valve Control Unit - Installation, AMM TASK 28-21-03-400-801.

- (2) Do the Initial Evaluation steps again to make sure you corrected the problem.

END OF TASK

813. R MAIN TK INBD REFUEL VALVE Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20154.

B. Initial Evaluation

- (1) Do these steps to operate the refuel valve:
- (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY



WARNING

DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (c) To get access to the integrated refuel panel (IRP).

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (d) Connect a fueling source to the refuel adapters to prepare for refueling. To prepare for refueling, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
- (e) Push and release the two indication lights for the right main fuel tank, on the IRP, to make sure the lights operate.

NOTE: This step makes sure the light bulbs are OK.

- (f) Apply fuel pressure from the fueling source.

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- (g) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
- (h) Make sure the indication lights come on, for the right main tank.
 - (i) Put the refuel valve control switch to the CLOSED position.
 - (j) Make sure the indication lights go off, for the right main tank
- (2) If the outboard refuel valve does not operate correctly or the maintenance message continues to show, do the Fault Isolation Procedure below.
- (3) If the outboard refuel valve operates correctly and the maintenance message does not show, there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check for 28V DC at the electrical connector for the inboard refuel valve control unit, V28207.
 - (a) Get access to the electrical connector (AMM TASK 28-21-03-000-801).
 - (b) Remove the electrical connector DV28207 from the refuel valve (WDM 28-21-31).
 - (c) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
 - 1) Do a check for 28V DC at pin 2, on the connector DV28207.
 - (d) Put the refuel valve control switch to the CLOSED position.
 - 1) Make sure 28V DC does not show at pin 2, on the connector DV28207.
 - 2) Do a wiring check to make sure there is continuity between pin 1, on connector DV28207 and structure ground.
 - 3) Do a wiring check to make sure there is continuity between pin 4, on connector DV28208 and structure ground.
 - 4) Do a wiring check to make sure there is continuity between pin 3, on connector DV28207 and structure ground.
 - (e) If the wiring is not OK, repair the wiring.
 - (f) If the wiring is OK, do these steps:
 - 1) Remove fueling pressure from the refuel manifold.
 - 2) Replace the refuel valve control unit. To replace it,
These are the tasks:
Refuel Valve Control Unit - Removal, AMM TASK 28-21-03-000-801,
Refuel Valve Control Unit - Installation, AMM TASK 28-21-03-400-801.
- (2) Do the Initial Evaluation steps again to make sure you corrected the problem.

————— **END OF TASK** —————

814. **R MAIN TK OUTBD REFUEL VALVE Problems - Fault Isolation**

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20157.

B. Initial Evaluation

- (1) Do these steps to operate the refuel valve:

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- (a) Make sure that these circuit breakers are closed:

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY



WARNING

DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.

- (c) To get access to the integrated refuel panel (IRP).

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (d) Connect a fueling source to the refuel adapters to prepare for refueling. To prepare for refueling, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.

- (e) Push and release the two indication lights for the right main fuel tank, on the IRP, to make sure the lights operate.

NOTE: This step makes sure the light bulbs are OK.

- (f) Apply fuel pressure from the fueling source.
- (g) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
- (h) Make sure the indication lights come on, for the right main tank.
- (i) Put the refuel valve control switch to the CLOSED position.
- (j) Make sure the indication lights go off, for the right main tank
- (2) If the outboard refuel valve does not operate correctly or the maintenance message continues to show, do the Fault Isolation Procedure below.
- (3) If the outboard refuel valve operates correctly and the maintenance message does not show, there was an intermittent fault.

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C. Fault Isolation Procedure

- (1) Do these steps to check for 28V DC at the electrical connector for the outboard refuel valve control unit, V28208.
 - (a) Get access to the electrical connector (AMM TASK 28-21-03-000-801).
 - (b) Remove the electrical connector DV28208 from the refuel valve (WDM 28-21-31).
 - (c) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
 - 1) Do a check for 28V DC at pin 2, on the connector DV28208.
 - (d) Put the refuel valve control switch to the CLOSED position.
 - 1) Make sure 28V DC does not show at pin 2, on the connector DV28208.
 - 2) Do a wiring check to make sure there is continuity between pin 1, on connector DV28208 and structure ground.
 - 3) Do a wiring check to make sure there is continuity between pin 4, on connector DV28208 and structure ground.
 - 4) Do a wiring check to make sure there is continuity between pin 3, on connector DV28208 and structure ground.
 - (e) If the wiring is not OK, repair the wiring.
 - (f) If the wiring is OK, do these steps:
 - 1) Remove fueling pressure from the refuel manifold.
 - 2) Replace the refuel valve control unit. To replace it,
These are the tasks:
Refuel Valve Control Unit - Removal, AMM TASK 28-21-03-000-801,
Refuel Valve Control Unit - Installation, AMM TASK 28-21-03-400-801.
- (2) Do the Initial Evaluation steps again to make sure you corrected the problem.

————— **END OF TASK** —————

815. RIGHT CENTER TANK REFUEL VALVE Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20156.

B. Initial Evaluation

- (1) Do these steps to operate the refuel valve:
 - (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY



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- (b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (c) To get access to the integrated refuel panel (IRP).

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (d) Connect a fueling source to the refuel adapters to prepare for refueling. To prepare for refueling, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
 - (e) Push and release the two indication lights for the center fuel tank, on the IRP, to make sure the lights operate.
NOTE: This step makes sure the light bulbs are OK.
 - (f) Apply fuel pressure from the fueling source.
 - (g) Put the refuel valve control switch (on the IRP) for the center fuel tank, to the OPEN position.
 - (h) Make sure the indication lights come on, for the center fuel tank.
 - (i) Put the refuel valve control switch to the CLOSED position.
 - (j) Make sure the indication lights go off, for the center fuel tank
- (2) If the right center refuel valve does not operate correctly or the maintenance message continues to show, do the Fault Isolation Procedure below.
 - (3) If the right center refuel valve operates correctly and the maintenance message does not show, there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check for 28V DC at the electrical connector for the right center refuel valve control unit, V28304.
 - (a) Get access to the electrical connector (AMM TASK 28-21-03-000-801).
 - (b) Remove the electrical connector DV28304 from the refuel valve (WDM 28-21-31).
 - (c) Put the refuel valve control switch (on the IRP) for the center fuel tank, to the OPEN position.
 - 1) Do a check for 28V DC at pin 2, on the connector DV28304.
 - (d) Put the refuel valve control switch to the CLOSED position.
 - 1) Make sure 28V DC does not show at pin 2, on the connector DV28304.

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- 2) Do a wiring check to make sure there is continuity between pin 1, on connector DV28304 and structure ground.
 - 3) Do a wiring check to make sure there is continuity between pin 4, on connector DV28304 and structure ground.
 - 4) Do a wiring check to make sure there is continuity between pin 3, on connector DV28304 and structure ground.
- (e) If the wiring is not OK, repair the wiring.
- (f) If the wiring is OK, do these steps:
- 1) Remove fueling pressure from the refuel manifold.
 - 2) Replace the refuel valve control unit. To replace it,
These are the tasks:
Refuel Valve Control Unit - Removal, AMM TASK 28-21-03-000-801,
Refuel Valve Control Unit - Installation, AMM TASK 28-21-03-400-801.
- (2) Do the Initial Evaluation steps again to make sure you corrected the problem.

————— END OF TASK —————

816. REFUEL VALVE light problems at the integrated refuel panel (IRP) - Fault Isolation

A. Initial Evaluation

NOTE: The FQPU can command the refuel valves to the closed position if there is a confirming or confirmed tank unit failure. The FQPU software will reduce the shutoff level to 3.2% below VSO.

- (1) Do these steps to operate the refuel valves:
- (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY

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DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

(b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.

(c) To get access to the integrated refuel panel (IRP) on the left wing.

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

(d) Make sure the refuel panel door lights are on.

NOTE: This shows there is power to the panel.

(e) Connect a fueling source to the refuel adapters to prepare for refueling. To prepare for refueling, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.

(f) Push and release each refuel valve indication light, on the IRP, to make sure the lights operate.

NOTE: This step makes sure the light bulbs are OK.

1) Replace the light bulb if it is necessary.

(g) Apply fuel pressure from the fueling source.

(h) Put each refuel valve control switch (on the IRP) to the OPEN position.

(i) Make sure each indication light, for the refuel valves, come on.

(j) Put each refuel valve control switch to the CLOSED position.

(k) Make sure each indication light goes off.

(2) If the refuel valves do not operate correctly or the indication light stay's on when it should be off, do the Fault Isolation Procedure below.

(3) If the refuel valves operate correctly, the system is OK.

(a) Remove the DO-NOT-OPERATE tag from the flap control lever, on the P10 Control Stand.

(b) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

B. Fault Isolation Procedure

(1) If the L MAIN TANK OUTBD, R MAIN TANK INBD or CENTER TANK RIGHT refuel valve OPEN light does not come on, do these steps:

NOTE: This condition occurs when the Fuel Quantity Indicating System (FQIS) system has entered the Reversionary (secondary channel) Mode of operation.

(a) Go to the Maintenance Access Terminal and look for maintenance message 28-20050 or a maintenance message for Tank Unit Signal out of Range - Problems.

(b) If you see maintenance message 28-20050, do this task: Fuel Quantity Processor (FQPU) - Fault Isolation, 28-41 TASK 801.

(c) If you see a maintenance message for Tank Unit Signal out of Range - Problems, do this task: Tank Unit Signal (Out of Range - Problems) - Fault Isolation, 28-41 TASK 824.

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- (d) If you do not see maintenance message 28-20050 or a maintenance message for Tank Unit Signal out of Range - Problems, continue.
- (2) Make sure the maintenance messages that follow do not show on the maintenance access terminal (MAT).
- (a) Make sure these refuel valve maintenance messages do not show: 28-20152, 28-20153, 28-20154, 28-20155, 28-20156, 28-20157.
- NOTE: If any of these messages do show go the applicable FIM procedure.
- (b) Make sure no fuel quantity processor unit (FQPU) messages show.
- NOTE: If any of these messages do show go the applicable FIM procedure.
- (3) Do these steps to do a check for continuity at pins 5 and 4 on the refuel valve controller (WDM 28-21-21), (WDM 28-21-31):
- (a) Remove the electrical connector from the refuel valve controller.
- (b) If there is continuity, replace the refuel valve controller. To replace it, These are the tasks:
- Refuel Valve Control Unit - Removal, AMM TASK 28-21-03-000-801,
Refuel Valve Control Unit - Installation, AMM TASK 28-21-03-400-801.
- 1) Do the initial evaluation steps again to make sure the refuel valve lights operate correctly.
 - 2) Remove the DO-NOT-OPERATE tag from the flap control lever, on the P10 Control Stand.
 - 3) Close this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (c) If there is no continuity, replace the integrated refuel panel. To replace it, These are the tasks:
- Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801,
Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.
- 1) Do the initial evaluation steps again to make sure the refuel valve lights operate correctly.
 - 2) Remove the DO-NOT-OPERATE tag from the flap control lever, on the P10 Control Stand.
 - 3) Close this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |

————— **END OF TASK** —————

817. Left wing integrated refuel panel (IRP) indicators and lights all stay off when refuel panel door is open - Fault Isolation

A. Initial Evaluation

- (1) Do these steps to check for power to the integrated refuel panel (IRP) and the refueling station lights:

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- (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	11	C28005	RFLNG DR LTS
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY



WARNING

DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (b) Install a DO NOT OPERATE tag, STD-858, on the flap control lever, on the P10 Control Stand.

- (c) To get access to the integrated refuel panel (IRP).

Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (d) Make sure the refuel panel door lights are on.

NOTE: This shows there is power to the refueling station.

- 1) Replace single light bulb if it is necessary.

- (e) Make sure the indication "TF" shows on the TOTAL/BACKUP display on the IRP.

NOTE: This shows there is power to the panel.

- (2) If there is no power to the IRP or refueling station lights, do the Fault Isolation Procedure below.

- (3) If there is power to the IRP and the refueling station lights, the system is OK.

- (a) Remove the DO NOT OPERATE tag, STD-858, from the flap control lever, on the P10 Control Stand.

- (b) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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B. Fault Isolation Procedure

- (1) Make sure the maintenance messages that follow do not show on the maintenance access terminal (MAT).
 - (a) Make sure this message for the refuel panel door relay does not show: 28-20044.
 - (b) If the IRP indication does not come on, make sure no fuel quantity processor unit (FQPU) messages show. This includes maintenance message 28-20053.
 - (c) If the maintenance messages above show, do the applicable fault isolation procedure.
 - (d) If the maintenance messages above do not show, then continue.
- (2) Do these steps to do a check of the refuel panel door switch and the related wiring:
 - (a) Do a continuity check from the ground side of the refuel panel door switch, S28032 (blue wire, W8410-A-H), to airplane ground (WDM 28-21-11).
 - 1) If there is no continuity to airplane ground, then do these steps:
 - a) Repair the connection to ground.
 - b) If there is power to the IRP and the refueling station lights, then the system is OK.
 - c) Remove the DO NOT OPERATE tag, STD-858 from the flap control lever, on the P10 Control Stand.
 - d) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
 - 2) If there is continuity to airplane ground, then continue.
 - (b) Replace the refuel panel door switch S28032 (WDM 28-21-11).
 - (c) If there is power to the IRP and the refueling station lights, the system is OK.
 - 1) Remove the DO NOT OPERATE tag, STD-858 from the flap control lever, on the P10 Control Stand.
 - 2) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
 - (d) If there is no power to the IRP or refueling station lights, then continue.
- (3) Do these steps to check for power at the refueling station:
 - (a) Open these circuit breakers and install safety tags:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	11	C28005	RFLNG DR LTS
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY

- (b) Disconnect the electrical connector DP28100, for the IRP P28 (WDM 28-21-11).
- (c) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

- (d) Make sure there is 28 VDC at pins 7 and 8 on connector DP28100.
- (e) Make sure there is continuity between pins 9 and 22 on connector DP28100 and airplane structure ground.
 - 1) Repair the wiring problems that you find.
 - 2) If there are no wiring problems,
These are the tasks:
Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801,
Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.
- (f) Open these circuit breakers and install safety tags:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

- (g) Remove the light bulb L28039, from the refueling station light fixture (WDM 28-21-11).
- (h) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	11	C28005	RFLNG DR LTS

- (i) Make sure there is 28 VDC at the light socket.
 - 1) Repair the wiring problems that you find.
- (j) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

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Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY

- (k) If there is power to the IRP and the refueling station lights, the system is OK.
- 1) Remove the DO NOT OPERATE tag, STD-858 from the flap control lever, on the P10 Control Stand.
 - 2) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (l) If there is no power to the IRP or refueling station lights, then continue.
- (4) Replace the REFUEL PWR XFR Relay, K28007, installed in the standby power management panel (SPMP) P310 (WDM 28-21-11).
- (a) If there is power to the IRP and the refueling station lights, the system is OK.
 - (b) Remove the DO NOT OPERATE tag, STD-858, from the flap control lever, on the P10 Control Stand.
 - (c) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— **END OF TASK** —————

818. FUEL QTY/LOAD SEL indicator problems at integrated refuel panel (IRP) - Fault Isolation

A. Initial Evaluation

NOTE: The FQPU can command the refuel valves to the closed position if there is a confirming or confirmed tank unit failure. The FQPU software will reduce the shutoff level to 3.2% below VSO.

- (1) If the fuel quantity indication is "blanking" while fuel continues to flow into the tank, do these steps:

NOTE: This condition occurs when the Fuel Quantity Indicating System (FQIS) system has entered the Reversionary (secondary channel) Mode of operation.

- (a) Stop fueling the airplane.
- (b) Get access to the maintenance access terminal (MAT).
- (c) Use the MAT to look for maintenance messages for the ATA 28 FUEL SYSTEM, do this task: How to Use the Central Maintenance Computing System, AMM TASK 45-10-00-740-808.

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- (d) Refer to the applicable Maintenance Message Index in the FIM to correct the problem or select the maintenance message and select MAINTENANCE MESSAGE DATA.
- (2) If the fuel quantity indication is "freezing" while fuel continues to flow into the tank, do these steps:
- (a) Stop fueling the airplane.
 - (b) look at the FQIS EICAS maintenance page and compare the tank unit heights between the left and right (compare the left main tank to the right main tank and the center left tank to the center right tank for equal main tank loads).
 - (c) Replace the faulty tank unit.
- These are the tasks:
- Tank Unit - Removal, AMM TASK 28-41-02-000-801,
Tank Unit - Installation, AMM TASK 28-41-02-400-801.
- NOTE: The replacement of the Fuel Quantity Processor Unit (FQPU) or other FQIS components will not correct this problem.
- (3) If the indicated fuel quantity fluctuates while fuel continues to flow into the tank, do these steps:
- NOTE: Fluctuating fuel quantity indication is associated with incorrect low fuel height measurements from a few probes. During this condition, the Fuel Quantity Maintenance Page will show large differences (usually more than six inches) between heights measured by specific tank units in one main tank compared to the same tank units in the other main tank.
- (a) Stop fueling the airplane.
 - (b) Do this task: Fuel Quantity Indicating System (FQIS) TANK UNITS and DENSITOMETERS - Operational Check, AMM TASK 28-41-00-710-801.
 - (c) Do this task: Fuel Quantity Processor Unit (FQPU) - Operational Check, AMM TASK 28-41-00-710-802.
 - (d) Wait until 15 minutes after refueling is stopped.
 - (e) If the indicated fuel quantity still fluctuates, do this task: Pressure Refueling - With An Inoperative Fuel Quantity Display, AMM TASK 12-11-01-650-809.
 - (f) If the indicated fuel quantity does not fluctuate, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
 - (g) Do this task: Fluctuating Fuel Quantity Indication - Fault Isolation, 28-22 TASK 853.
- (4) If the fuel quantity indication is not "freezing", "blinking", or fluctuating, do these steps to do a check of the fuel quantity indication at the refuel panel:
- (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY



WARNING

DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (c) To get access to the integrated refuel panel (IRP).

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (d) Make sure the indication "TF" shows on the TOTAL/BACKUP display on the IRP.
NOTE: This shows there is power to the panel.
 - 1) If the refuel panel lights do not come on, put the battery switch to the BATT position.
- (e) If the indication "TF" does not show on the TOTAL/BACKUP display on the IRP, do the observed fault isolation procedure "Integrated refuel panel indicators and lights all stay off when the panel is opened".
- (f) If the indication "TF" shows on the TOTAL/BACKUP display on the IRP, push the TEST IND switch on the IRP.

ARO 001-010

- (g) Make sure the correct test patterns (###.#) show on the FUEL QTY displays and the LOAD SEL displays on the IRP.

NOTE: A checker-board pattern will show on the FUEL QTY display and the LOAD SEL display for 2 seconds, the opposite pattern will show for 2 seconds, and then the displays will go off for 2 seconds. The test patterns will show one more time and then the each FUEL QTY display and the LOAD SEL display will return to their usual condition.

ARO 011-999

- (h) Make sure that all LEDs show on the FUEL QTY displays and the LOAD SEL displays on the IRP.

NOTE: All LEDs will show on the FUEL QTY displays and the LOAD SEL displays for 2 seconds, then the dot matrix LEDs will go off for 4 seconds, and then come on for 2 seconds. Each time after the dot matrix LEDs go off, the LB/KG/RM/LM/CT/TF LEDs stay on for 2 seconds and then go off. After the test, the LEDs for each FUEL QTY display and LOAD SEL display will return to their usual condition.

ARO ALL

- (i) Make sure the fuel quantity indication shows for each tank in the FUEL QTY display.
- (5) If the FUEL QTY display or the LOAD SEL display operate correctly, the system is OK.

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- (a) Remove the DO-NOT-OPERATE tag from the flap control lever, on the P10 Control Stand.
- (b) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (6) If the FUEL QTY display or the LOAD SEL display do not operate correctly, do the Fault Isolation procedure below:

B. Fault Isolation Procedure

- (1) Make sure the maintenance messages that follow do not show on the maintenance access terminal (MAT).
 - (a) Make sure this IRP message 28-20053, does not show.
 - (b) Make sure no fuel quantity processor unit (FQPU) messages show.
 - (c) If the maintenance messages above do not show, replace the integrated refuel panel. To replace it,

These are the tasks:

Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801,

Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.

- (d) Do the initial evaluation steps again to make sure the fuel quantity indication operates correctly.
- (e) Remove the DO-NOT-OPERATE tag from the flap control lever, on the P10 Control Stand.
- (f) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— **END OF TASK** —————

819. LOAD SELECT QTY switch problems at the integrated refuel panel (IRP) - Fault Isolation

A. Initial Evaluation

NOTE: The FQPU can command the refuel valves to the closed position if there is a confirming or confirmed tank unit failure. The FQPU software will reduce the shutoff level to 3.2% below VSO.

- (1) Do these steps to do a check of the LOAD SELECT QTY function at the IRP:
 - (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY



WARNING

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- (b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (c) To get access to the integrated refuel panel (IRP).

Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (d) Make sure the indication "TF" shows on the TOTAL/BACKUP display on the IRP.

NOTE: This shows there is power to the panel.

- 1) If the refuel panel lights do not come on, put the battery switch to the BATT position.
- (e) If the indication "TF" does not show on the TOTAL/BACKUP display on the IRP, do the observed fault isolation procedure "Integrated refuel panel indicators and lights all stay off when the panel is opened".
- (f) If the indication "TF" shows on the TOTAL/BACKUP display on the IRP, push the TEST IND switch on the IRP.

ARO 001-010

- (g) Make sure the correct test patterns (###.#) show on the FUEL QTY displays and the LOAD SEL displays on the IRP.

NOTE: A checker-board pattern will show on the FUEL QTY display and the LOAD SEL display for 2 seconds, the opposite pattern will show for 2 seconds, and then the displays will go off for 2 seconds. The test patterns will show one more time and then the each FUEL QTY display and the LOAD SEL display will return to their usual condition.

ARO 011-999

- (h) Make sure that all LEDs show on the FUEL QTY displays and the LOAD SEL displays on the IRP.

NOTE: All LEDs will show on the FUEL QTY displays and the LOAD SEL displays for 2 seconds, then the dot matrix LEDs will go off for 4 seconds, and then come on for 2 seconds. Each time after the dot matrix LEDs go off, the LB/KG/RM/LM/CT/TF LEDs stay on for 2 seconds and then go off. After the test, the LEDs for each FUEL QTY display and LOAD SEL display will return to their usual condition.

ARO ALL

- (i) Make sure the fuel quantity indication shows for each tank in the FUEL QTY display.
- (j) To do a check of the LOAD SELECT QTY switch function, do these steps:

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- 1) At the LOAD SELECT QTY switch, set the thumb wheel switches to a fuel load value of 25.3.
 - 2) Push the LOAD SELECT SET switch for each fuel tank (left, center and right), for 1 second and release it.
 - 3) Make sure the fuel quantity 25.3 shows on each LOAD SEL display.
 - 4) Push the LOAD SELECT SET switch for each fuel tank (left, center and right), for 1 second and release it.
 - 5) Make sure the fuel quantity 25.3 does not show on each LOAD SEL display.
- (2) If the LOAD SEL display operates correctly, the system is OK.
- (a) Remove the DO-NOT-OPERATE tag from the flap control lever, on the P10 Control Stand.
 - (b) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- (3) If the LOAD SEL display does not operate correctly, do the Fault Isolation procedure below:

B. Fault Isolation Procedure

- (1) Make sure this IRP message 28-20053, does not show on the maintenance access terminal (MAT).
 - (a) If the maintenance message above does not show, replace the integrated refuel panel. To replace it,
These are the tasks:
Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801,
Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.
 - (b) Do the initial evaluation steps again to make sure the fuel quantity indication operates correctly.
 - (c) Remove the DO-NOT-OPERATE tag from the flap control lever, on the P10 Control Stand.
 - (d) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

820. OVERFILL IND light problems at the integrated refuel panel (IRP) - Fault Isolation

A. Initial Evaluation

- (1) Do these steps to do a check of the OVERFILL IND system at the IRP:
 - (a) Do check for fuel in the left and right surge tanks. To check for fuel, do this task: Surge Tank Sump Drain Valve - Fuel Check, AMM TASK 12-11-02-650-802.
 - 1) If there is fuel in the left or right surge tanks, defuel the applicable main fuel tank to below full, remove the fuel from the surge tank.
 - 2) To defuel a main fuel tank, do one of these steps:
 - a) Do this task: Pressure Defueling, AMM TASK 28-26-00-650-801.

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- b) Do this task: Tank to Tank Transfer, AMM TASK 28-26-00-650-802.
- (b) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY



WARNING

DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (c) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (d) To get access to the integrated refuel panel (IRP).

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (e) Make sure the indication "TF" shows on the TOTAL/BACKUP display on the IRP.

NOTE: This shows there is power to the panel.

- 1) If the refuel panel lights do not come on, put the battery switch to the BATT position.
- (f) If the indication "TF" does not show on the TOTAL/BACKUP display on the IRP, do the observed fault isolation procedure "Integrated refuel panel indicators and lights all stay off when the panel is opened".
- (g) If the indication "TF" shows on the TOTAL/BACKUP display on the IRP, push the TEST IND switch on the IRP.
- (h) Make sure the fuel quantity indication shows for each tank in the FUEL QTY display.
- (i) To do a check of the OVERFILL IND switch function, do these steps:
- 1) Push the OVERFILL IND light to make sure the light comes on.
 - a) If the light does not come on, replace the OVERFILL IND light.
 - 2) Push the OVERFILL TEST switch for 1 second and release.
 - 3) Make sure the OVERFILL IND light comes on.
 - 4) Put the OVERFILL NORMAL/RESET switch to the RESET position, for 2 seconds.

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- 5) Put the OVERFILL NORMAL/RESET switch to the NORMAL position.
- 6) Make sure the OVERFILL IND light goes off.
- (2) If the OVERFILL IND system operates correctly, the system is OK.
 - (a) Remove the DO-NOT-OPERATE tag from the flap control lever, on the P10 Control Stand.
 - (b) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- (3) If the OVERFILL IND system does not operate correctly, do the Fault Isolation procedure below:

B. Fault Isolation Procedure

- (1) Remove the Overfill Control Relay K28044, on the P310 Standby Power Management Panel (SPMP) (SSM 28-21-41).
 - (a) Do a wiring check pins X1 for 28V DC, on connector DK28044.
 - (b) Do a wiring check between pin C2, on connector DK28044 and airplane structure ground.
 - (c) Do a continuity check between these pins on connector DK28044, on the P310 SPMP.

<u>DK28044</u>	<u>DK28044</u>
pin A1	pin A2
- (d) Repair the wiring problems that you find.
- (e) If there are no wiring problems, replace the Overfill Control Relay K28044.
- (f) To do a check of the OVERFILL IND switch function, do these steps:
 - 1) Push the OVERFILL TEST switch for 1 second and release.
 - 2) Make sure the OVERFILL IND light comes on.
 - 3) Put the OVERFILL NORMAL/RESET switch to the RESET position, for 2 seconds.
 - 4) Put the OVERFILL NORMAL/RESET switch to the NORMAL position.
 - 5) Make sure the OVERFILL IND light goes off.
- (g) If the OVERFILL IND system operates correctly, the system is OK.
 - 1) Remove the DO-NOT-OPERATE tag from the flap control lever, on the P10 Control Stand.
 - 2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- (h) If the OVERFILL IND system does not operate correctly, then continue.
- (2) Replace the integrated refuel panel (IRP) P28. To replace it, These are the tasks:
Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801,
Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.
 - (a) To do a check of the OVERFILL IND switch function, do these steps:
 - 1) Push the OVERFILL TEST switch for 1 second and release.

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- 2) Make sure the OVERFILL IND light comes on.
 - 3) Put the OVERFILL NORMAL/RESET switch to the RESET position, for 2 seconds.
 - 4) Put the OVERFILL NORMAL/RESET switch to the NORMAL position.
 - 5) Make sure the OVERFILL IND light goes off.
- (b) If the OVERFILL IND system operates correctly, the system is OK.
- 1) Remove the DO-NOT-OPERATE tag from the flap control lever, on the P10 Control Stand.
 - 2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (c) If the OVERFILL IND system does not operate correctly, then continue.
- (3) Disconnect the electrical connectors DS28119 and DS28919 from the left and right surge tank float switches (AMM TASK 28-21-04-000-801).

- (a) Do a continuity check between these pins on connector DS28119 and connector DS28219:

DS28119	DS28219
pin 2	pin 2

- (b) Do a wiring check between pins 1 and 3 on connector DS28119 and airplane structure ground.
- (c) Do a wiring check between pins 1 and 3 on connector DS28219 and airplane structure ground.
- (d) Repair the wiring problems that you find.
- (e) If there are no wiring problems, replace the overfill float switch in the left surge tank. To replace it,

These are the tasks:

Surge Tank Float Switch - Removal, AMM TASK 28-21-04-000-801,
Surge Tank Float Switch - Installation, AMM TASK 28-21-04-400-801.

- (f) To do a check of the OVERFILL IND switch function, do these steps:
- 1) Push the OVERFILL TEST switch for 1 second and release.
 - 2) Make sure the OVERFILL IND light comes on.
 - 3) Put the OVERFILL NORMAL/RESET switch to the RESET position, for 2 seconds.
 - 4) Put the OVERFILL NORMAL/RESET switch to the NORMAL position.
 - 5) Make sure the OVERFILL IND light goes off.
- (g) If the OVERFILL IND system operates correctly, the system is OK.
- 1) Remove the DO-NOT-OPERATE tag from the flap control lever, on the P10 Control Stand.
 - 2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
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- (h) If the OVERFILL IND system does not operate correctly, then replace the overfill float switch in the right surge tank. To replace it,
These are the tasks:
Surge Tank Float Switch - Removal, AMM TASK 28-21-04-000-801,
Surge Tank Float Switch - Installation, AMM TASK 28-21-04-400-801.
- (i) To do a check of the OVERFILL IND switch function, do these steps:
- 1) Push the OVERFILL TEST switch for 1 second and release.
 - 2) Make sure the OVERFILL IND light comes on.
 - 3) Put the OVERFILL NORMAL/RESET switch to the RESET position, for 2 seconds.
 - 4) Put the OVERFILL NORMAL/RESET switch to the NORMAL position.
 - 5) Make sure the OVERFILL IND light goes off.
- (j) If the OVERFILL IND system operates correctly, the system is OK.
- 1) Remove the DO-NOT-OPERATE tag from the flap control lever, on the P10 Control Stand.
 - 2) Close this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |

————— END OF TASK —————

826. Refuel slow - Fault Isolation

A. Initial Evaluation

- (1) Do these steps to prepare to operate the refuel valves:
- (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS
J	11	C28623	RFLNG QTY

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WARNING

DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (c) To get access to the integrated refuel panel (IRP) on the left wing, do this step:

- 1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (d) Connect a fueling source to the refuel adapters to prepare for refueling. To prepare for refueling, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
- (e) Push and release each refuel valve indication light, on the IRP, to make sure the lights operate.

NOTE: This step makes sure the light bulbs are OK.

- 1) Replace the light bulb if it is necessary.
- (f) Apply fuel pressure from the fueling source.
- NOTE: Monitor the fuel source to make sure that the pressure is not more than 55 psi.
- (g) Do these steps for the tank which shows slow refueling:

- 1) Move the refuel valve switch to the open position.
- 2) Make sure that both indication lights come on.
- 3) Make sure that the refueling source shows the usual fuel flow rates.

NOTE: If the fuel pressure at the refuel hydrant is 55 psig (379 kPa), then the refuel rate through two refuel adapters into one fuel tank should be more than 500 gpm (1893 l/min).

- a) If the center tank has a refuel rate slower than usual, it indicates a fault in the secondary refuel valve or secondary refuel valve float valve.

NOTE: At 35 psig (241 kPa), the usual refuel rate is approximately 550 gpm (2082 l/min). If only one secondary refuel valve is operating, the usual refuel rate would be approximately 475 gpm (1798 l/min). If both secondary refuel valves are closed, the usual refuel rate would be approximately 400 gpm (1514 l/min). The secondary refuel valves automatically close at 95% volumetric shutoff (VSO).

- 4) Move the refuel valve switch to the closed position.
- (2) Stop the fueling source.
- (3) If the FQPU 0320KPU01 is installed, one refuel valve in each tank will remain closed if the FQPU is operating in reversionary mode (28-41 TASK 852).
- (4) If the refuel valves do not operate correctly, then do the Fault Isolation Procedure below.
- (5) If the refuel valves operate correctly, then there was an intermittent fault.

B. Fault Isolation Procedure

- (1) For the tank that shows slow refueling, do these steps to find which refuel valve does not operate correctly:
 - (a) Start the fueling source.

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- (b) Get access to the electrical connector (AMM TASK 28-21-03-000-801).
- (c) Do these steps for each refuel valve in the applicable tank:
 - 1) Remove the electrical connector from the refuel valve.
NOTE: During usual operation, a valve will only open when the electrical connector is attached and the refuel valve switch is in the OPEN position.
 - 2) Put the refuel valve control switch for the applicable tank to the OPEN position.
NOTE: This step will open the other refuel valve which is attached to an electrical connector.
 - 3) Listen for the sound of fuel flow near each refuel valve in the applicable tank.
NOTE: If you do not hear fuel flow near the valve that is attached to an electrical connector, that valve or control unit may be damaged. Also, if you hear fuel flow near the valve that is not attached to an electrical connector, that valve or the control unit may be damaged.
 - 4) Record the quantity of fuel transferred in five minutes, as shown on the fueling source flowmeter.
NOTE: This fuel quantity was transferred through the valve that is attached to the electrical connector.
 - 5) Put the refuel valve control switch for the applicable tank to the CLOSED position.
 - 6) Re-connect the electrical connector to the refuel valve.
- (d) Compare the recorded fuel quantities.
 - 1) If one refuel valve showed much less flow than the other refuel valve, then it is not operating correctly.
- (2) Do the applicable task to check for 28 V DC at the electrical connector of the refuel valve that is not operating correctly:
 - (a) For the inboard refuel valve in the left main tank, do this task: L MAIN TK INBD REFUEL VALVE Problems - Fault Isolation, 28-21 TASK 801.
 - (b) For the outboard refuel valve in the left main tank, do this task: L MAIN TK OUTBD REFUEL VALVE Problems - Fault Isolation, 28-21 TASK 811.
 - (c) For the left refuel valve in the center tank, do this task: LEFT CENTER TANK REFUEL VALVE Problems - Fault Isolation, 28-21 TASK 812.
 - (d) For the inboard refuel valve in the right main tank, do this task: R MAIN TK INBD REFUEL VALVE Problems - Fault Isolation, 28-21 TASK 813.
 - (e) For the outboard refuel valve in the right main tank, do this task: R MAIN TK OUTBD REFUEL VALVE Problems - Fault Isolation, 28-21 TASK 814.
 - (f) For the right refuel valve in the center tank, do this task: RIGHT CENTER TANK REFUEL VALVE Problems - Fault Isolation, 28-21 TASK 815.
- (3) Replace the refuel valve that is not operating correctly.
These are the tasks:
Refuel Valve Control Unit - Removal, AMM TASK 28-21-03-000-801,
Refuel Valve Control Unit - Installation, AMM TASK 28-21-03-400-801.
- (4) Replace the secondary refuel valve float valve that is not operating correctly.
These are the tasks:
Secondary Refuel Valve Float Valve - Removal, AMM TASK 28-21-11-000-801,

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Secondary Refuel Valve Float Valve - Installation, AMM TASK 28-21-11-400-801.

- (5) Replace the secondary refuel valve that is not operating correctly.

These are the tasks:

Secondary Refuel Valve - Removal, AMM TASK 28-21-10-000-801,

Secondary Refuel Valve - Installation, AMM TASK 28-21-10-400-801.

- (6) Do the Initial Evaluation steps again to make sure that you corrected the problem.

————— **END OF TASK** —————

827. Overfill during refuel - Fault Isolation

A. Initial Evaluation

- (1) If the red OVERFILL IND light on the IRP is on, then do these steps:

NOTE: This condition shows there is fuel in the surge tank.

- (a) Set the refuel valve switches to the CLOSE position if they are not set to the CLOSE position.
 - (b) With the fuel gage or fuel measuring sticks, find out which fuel tank overfilled.
 - (c) Remove fuel from the overfilled fuel tank until it shows the applicable maximum volume. To do this, do this task: Tank to Tank Transfer, AMM TASK 28-26-00-650-802 or, do this task: Pressure Defueling, AMM TASK 28-26-00-650-801
 - 1) After you defuel the overfilled fuel tank, the surge tank will drain into the main fuel tank.
 - (d) Reset the overfill system. To do this, open and close the RESET switch and switch guard on the IRP.
- (2) Make sure none of the refuel valves were opened manually.
- (a) To get access to the refuel valves to see if any of them were opened manually, do this task: Pressure Refueling - With Inoperative Refuel Valves, AMM TASK 12-11-01-650-808
- (3) Do these tasks to do a check of the Fuel Quantity Indicating System (FQIS):
- (a) Check the three month history of the tank unit's maintenance messages, especially the L and R main tank units prior to #28. Replace the intermittent/hard fault tank unit before further troubleshooting of this task. If applicable, do these tasks: Tank Unit Circuit (Open/Short) Problems - Fault Isolation, 28-41 TASK 805 and Tank Unit Signal (Out of Range - Problems) - Fault Isolation, 28-41 TASK 824.
 - (b) Do this task: Fuel Quantity Indicating System (FQIS) TANK UNITS and DENSITOMETERS - Operational Check, AMM TASK 28-41-00-710-801.
 - (c) Do this task: Fuel Quantity Processor Unit (FQPU) - Operational Check, AMM TASK 28-41-00-710-802.
 - (d) If the test shows a problem, do the applicable FIM procedure for the fault(s) shown.
 - (e) If the test does not show a problem, then continue.
- (4) Do these steps to do a check of the refuel valves and the related relays:
- (a) On the MAT, do a check of the present faults and the Fault History for these maintenance messages. To find one of these faults from the present flight leg, do this task: How to Find Maintenance Messages from the Present Leg that are not Correlated, AMM TASK 45-10-00-740-817

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To find one of these faults in the fault history for ATA number 28, do this task: How to Find the Fault History Data for One ATA System, AMM TASK 45-10-00-740-813.

- 1) 28-13101 - Relay (L MAIN TK INBD REFUEL VLV CTRL)
 - 2) 28-13102 - Relay (L MAIN TK OUTBD REFUEL VLV CTRL)
 - 3) 28-13104 - Relay (R MAIN TK INBD REFUEL VLV CTRL)
 - 4) 28-13105 - Relay (R MAIN TK OUTBD REFUEL VLV CTRL)
 - 5) 28-13107 - Relay (CTR L TK REFUEL VLV CTRL)
 - 6) 28-13108 - Relay (CTR R TK REFUEL VLV CTRL)
 - 7) 28-20152 - Valve (Left Main Tank Inboard Refuel) is not in commanded position.
 - 8) 28-20153 - Valve (Center Left Tank Inboard Refuel) is not in commanded position.
 - 9) 28-20154 - Valve (Right Main Tank Inboard Refuel) is not in commanded position.
 - 10) 28-20155 - Valve (Left Main Tank Outboard Refuel) is not in commanded position.
 - 11) 28-20156 - Valve (Center Right Tank Refuel) is not in commanded position.
 - 12) 28-20157 - Valve (Right Main Tank Outboard Refuel) is not in commanded position.
- (b) If you find one of these maintenance messages in present faults or Fault History, do the applicable procedure for the message shown.
- (c) If you do not find one of these maintenance messages as a present fault or in Fault History, then continue.
- (5) If it is possible, make sure the airplane has a ground attitude of 0.7 degrees nose-down pitch and 0 degrees roll.
- NOTE:** This attitude permits you to put the maximum quantity of fuel in the tanks.
- (6) Make sure all three tanks have less than the full quantity of fuel.
- NOTE:** This is necessary to open the refuel valves when fuel pressure is applied. If you know which tank caused the overfill, it is only necessary to remove fuel from that tank.
- (a) If it is necessary, remove some fuel from the fuel tanks. To do this, do this task: Pressure Defueling, AMM TASK 28-26-00-650-801.
- (7) Do these steps to prepare to operate the refuel valves:
- (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND
D	7	C28603	RFLNG CTRL GND
D	8	C28622	RFLNG QTY GND

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2
J	8	C28600	RFLNG CTRL
J	9	C28601	RFLNG VLVS

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Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	11	C28623	RFLNG QTY



DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (c) To get access to the integrated refuel panel (IRP) on the left wing.

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (d) Connect a fueling source to the refuel adapters to prepare for refueling. To prepare for refueling, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
- (e) Push and release each refuel valve indication light, on the IRP, to make sure the lights operate.

NOTE: This step makes sure the light bulbs are OK.

- 1) Replace the light bulb if it is necessary.
- (f) Make sure that the refuel valve control switch for the applicable tank is in the CLOSED position.
- (g) Apply fuel pressure from the fueling source.

NOTE: Monitor the fuel source to make sure that the pressure is not more than 55 psi.

- (h) Make sure that the indication lights for the applicable tank are off.
 - (i) If the refueling source shows fuel flow, then write the fuel flow rate. Do the Fault Isolation Procedure below.
 - (j) If the refueling source shows no fuel flow, then continue.
- (8) With fuel pressure applied from the fueling source, do these steps to check that the refuel valves all open and close normally:
- (a) To open the refuel valves, do these steps:
 - 1) Put all the refuel valve switches to the OPEN position.
 - 2) Make sure the applicable blue refuel valve lights come on.
 - a) If the applicable refuel valve light does not come on, press and release the light to make sure the light bulb is OK.
 - b) If the light bulb is not OK, then replace the bulb.
 - c) If the light bulb is OK, do the applicable procedure for problems with that refuel valve.
 - (b) Monitor the fuel quantity on the FUEL QTY displays, on the IRP.

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- (c) Push the TEST SYSTEM switch to do a refueling system test.

NOTE: If you push the TEST SYSTEM switch during the refueling procedure, it causes the FQIS processor to test the pressure refueling system. The FQIS processor does a load select test, and a full tank shutoff test. After these tests are done, the refuel valves close in sequence. The refuel valves then open, and refueling continues.

- (d) Make sure the refuel valves open and close in sequence and that refueling continues normally.

- (e) Stop the refueling operation.

- (f) If the refueling system test is not OK, then do a check of the MAT for new maintenance messages related to the refuel valves or the FQIS.

- 1) If the MAT shows one or more new maintenance messages related to the refuel valves or the FQIS, then do the Fault Isolation procedure for the fault shown.
- 2) If the MAT shows no new maintenance messages related to the refuel valves or the FQIS, then do the Fault Isolation procedure below for the tank that showed the problem.

- (g) If the refueling system test is OK, then continue.

- (9) Do these steps to make sure the refuel system stops the fuel flow correctly into the center tank:

NOTE: If you are sure the center tank does not have an overfill problem, then these steps are not necessary.

- (a) Put a 55 gallon (208 liter) drum container, STD-1439 or equivalent below each surge tank vent to catch any accidental fuel spillage.

- (b) Carefully monitor the red OVERFILL IND light on the IRP.

- 1) If the OVERFILL IND light comes on, immediately release the deadman switch.

NOTE: If there is a leak in the refuel manifold upstream of the refuel valves or if the overfill protection system is bad, then this step will prevent a fuel spill from the surge tank.

- (c) Do the pressure refueling procedure for the center tank only. To do this, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801

- 1) If a LOW PRESSURE setting on the fuel source (fuel truck or fuel hydrant) is available, set the fuel source to LOW PRESSURE.

NOTE: This step minimizes the possibility of a fuel spill.

- 2) Make sure the fueling shutoff valves for the left and right main tanks are closed.
- 3) Monitor the fuel quantity in the center tank.

- (d) Make sure automatic shutoff occurs before the fuel quantity increases to approximately 176,500 pounds (79,700 kilograms).

- 1) If normal shutoff does not occur, do the Fault Isolation procedure below for the center tank.

- 2) If normal shutoff occurs, then continue.

- (10) Do these steps to make sure the refuel system stops the fuel flow correctly into the left main tank:

NOTE: If you are sure the left main tank does not have an overfill problem, then these steps are not necessary.

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- (a) Put a 55 gallon (208 liter) drum container, STD-1439 or equivalent below the surge tank vents to catch any accidental fuel spillage.
 - (b) Carefully monitor the red OVERFILL IND light on the IRP.
 - 1) If the OVERFILL IND light comes on, immediately release the deadman switch.
NOTE: If there is a leak in the refuel manifold upstream of the refuel valves or if the overfill protection system is bad, then this step will prevent a fuel spill from the surge tank.
 - (c) Do the pressure refueling procedure for the tank that you repaired only. To do this, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801
 - 1) Make sure the fueling shutoff valves for the center tank and right main tank are closed.
 - 2) If a LOW PRESSURE setting on the fuel source (fuel truck or fuel hydrant) is available, set the fuel source to LOW PRESSURE.
NOTE: This step minimizes the possibility of a fuel spill.
 - 3) Monitor the fuel quantity in the left main tank.
 - (d) Make sure automatic shutoff occurs before the fuel quantity increases to approximately 64,700 pounds (29,400 kilograms).
 - 1) If normal shutoff does not occur, do the Fault Isolation procedure below for the tank.
 - 2) If normal shutoff occurs, then continue.
- (11) Do these steps to make sure the refuel system stops the fuel flow correctly into the right main tank:
- NOTE: If you are sure the right main tank does not have an overfill problem, then these steps are not necessary.
- (a) Put a 55 gallon (208 liter) drum container, STD-1439 or equivalent below the right surge tank vent to catch any accidental fuel spillage.
 - (b) Carefully monitor the red OVERFILL IND light on the IRP.
 - 1) If the OVERFILL IND light comes on, immediately release the deadman switch.
NOTE: If there is a leak in the refuel manifold upstream of the refuel valves or if the overfill protection system is bad, then this step will prevent a fuel spill from the surge tank.
 - (c) Do the pressure refueling procedure for the right main tank only. To do this, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801
 - 1) Make sure the fueling shutoff valves for the center tank and left main tank are closed.
 - 2) If a LOW PRESSURE setting on the fuel source (fuel truck or fuel hydrant) is available, set the fuel source to LOW PRESSURE.
NOTE: This step minimizes the possibility of a fuel spill.
 - 3) Monitor the fuel quantity in the right main tank.
 - (d) Make sure automatic shutoff occurs before the fuel quantity increases to approximately 64,700 pounds (29,400 kilograms).
 - 1) If normal shutoff does not occur, do the Fault Isolation procedure below for the right main tank.

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- 2) If normal shutoff occurs, then there was an intermittent fault.

NOTE: It is possible that the fault was caused by an unusual airplane attitude during the refueling operation or by fuel expansion.

B. Fault Isolation Procedure

- (1) Make sure that the refuel valve control switch for the applicable tank is in the CLOSED position.
- (2) Record the quantity of fuel transferred in five minutes, as shown on the fueling source flowmeter.
- (3) Get access to the electrical connector (AMM TASK 28-21-03-000-801).
- (4) Do these steps to find which of the two refuel valves in the applicable tank is bad:
 - (a) Make sure that the fueling source is on.
 - (b) Remove the electrical connector from one refuel valve.
 - (c) Put the refuel valve control switch for the applicable tank to the OPEN position.
 - (d) Record the quantity of fuel transferred in five minutes, as shown on the fueling source flowmeter.
 - (e) If this fuel quantity is not significantly more than the fuel quantity that was recorded with both valves closed, then do these steps:
 - 1) Replace the refuel valve that is still attached to an electrical connector.
These are the tasks:
Refuel Valve Control Unit - Removal, AMM TASK 28-21-03-000-801,
Refuel Valve Control Unit - Installation, AMM TASK 28-21-03-400-801.
 - (f) Put the refuel valve control switch for the applicable tank to the CLOSED position.
 - (g) Re-connect the electrical connector to the refuel valve.
- (5) Do the Repair Confirmation procedure below to make sure that you corrected the problem.
- (6) If you did not correct the problem, do a check for leaks between the refuel adapters and the refuel valves. To do a check for leaks, do this task: Refuel/Jettison and Fuel Feed Manifold - Leak Test, AMM TASK 28-21-00-790-802.
 - (a) Repair the problems that you find.
 - (b) Do the Repair Confirmation procedure below.

C. Repair Confirmation

- (1) Do these steps to make sure the refuel system stops the fuel flow correctly into the tank that you repaired:
 - (a) Put a 55 gallon (208 liter) drum container, STD-1439 or equivalent below the surge tank vents to catch any accidental fuel spillage.
 - (b) Carefully monitor the red OVERFILL IND light on the IRP.
 - 1) If the OVERFILL IND light comes on, immediately release the deadman switch.
NOTE: If there is a leak in the refuel manifold upstream of the refuel valves or if the overfill protection system is bad, then this step will prevent a fuel spill from the surge tank.
 - (c) Do the pressure refueling procedure for the tank that you repaired. To do this, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801
 - 1) Make sure the fueling shutoff valves for the other two tanks are closed.

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- 2) If a LOW PRESSURE setting on the fuel source (fuel truck or fuel hydrant) is available, set the fuel source to LOW PRESSURE.
NOTE: This step minimizes the possibility of a fuel spill.
- 3) Monitor the fuel quantity in the tank that you repaired.
- (d) For the left or the right main tank, make sure automatic shutoff occurs before the fuel quantity increases to approximately 64,700 pounds (29,400 kilograms).
 - 1) If normal shutoff occurs, then you corrected the fault.
- (e) For the center tank, make sure automatic shutoff occurs before the fuel quantity increases to approximately 176,500 pounds (79,700 kilograms).
 - 1) If normal shutoff occurs, then you corrected the fault.

————— **END OF TASK** —————

828. Early Shutoff During Refueling - Fault Isolation

A. General

- (1) If there is a single confirming or confirmed tank unit failure, the Fuel Quantity Processor Unit (FQPU) will command the refuel valves in the applicable tank to the closed position before Volumetric Shutoff (VSO). If the FQPU commands early shutoff in one main fuel tank, then there will be a fuel imbalance up to approximately 2200 lb (1000 kg) between the left and right main fuel tanks. This imbalance must be corrected before takeoff.

NOTE: These are the VSO values for each fuel tank at an airplane attitude of $-0.7^{\circ} \pm 0.25^{\circ}$ nose down and $0^{\circ} \pm 0.25^{\circ}$ roll:

Center Tank: 184500 lb (83700 kg) - 187200 lb (84900 kg)

Left Tank: 69600 lb (31600 kg) - 70700 lb (32100 kg)

Right Tank: 69600 lb (31600 kg) - 70700 lb (32100 kg)

- Tank Unit 10 Fault (163 Gallons Below VSO; or 1.7% Below VSO): Maint Message: 28-20060, 28-20061, 28-20108, 28-20109
- Tank Unit 17 Fault (112 Gallons Below VSO; or 1.2% Below VSO): Maint Message: 28-20074, 28-20075, 28-20122, 28-20123
- Tank Unit 18 Fault (165 Gallons Below VSO; or 1.7% Below VSO): Maint Message: 28-20076, 28-20077, 28-20124, 28-20125
- Tank Unit 19 Fault (99 Gallons Below VSO; or 1.0% Below VSO): Maint Message: 28-20078, 28-20079, 28-20126, 28-20127
- Other Failed Units can cause shutoff of 3.2% Below VSO

B. Possible Causes

- (1) Defective Integrated Refuel Panel (IRP) refuel valve switches have been reported. The switches can cause the refuel valves to stay closed when commanded open.

NOTE: IRPs with a red square symbol adjacent to the part number contain the latest switch configuration to correct the problem.

C. Fault Isolation Procedure

- (1) If it is necessary, rebalance or transfer fuel to make sure all airplane fuel loading requirements are met. These are the tasks:
 - Tank to Tank Transfer, AMM TASK 28-26-00-650-802

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- Pressure Refueling - With Inoperative Refuel Valves, AMM TASK 12-11-01-650-808

NOTE: To fill a fuel tank after early shutoff, you must manually operate the refuel valves in the tank.

————— **END OF TASK** —————

829. LEFT MAIN TANK INBD REFUEL VALVE CTRL RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-13121.

B. Initial Evaluation



WARNING

DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (1) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (2) To get access to the integrated refuel panel (IRP) P28.

Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (b) Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
- (c) Wait 15 seconds.
- (d) Put the refuel valve control switch to the CLOSED position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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C. Fault Isolation Procedure

- (1) Replace the L MAIN TK INBD REFUEL VLV CTRL Relay K28116, installed in the standby power management panel (SPMP) P310 (WDM 28-21-21).

- Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
- Wait 15 seconds.
- Put the refuel valve control switch to the CLOSED position.
- If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do a check of the ELMS Signal Interface Unit 1 (SIU 1), M24512, in the SPMP P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
- Wait 15 seconds.
- Put the refuel valve control switch to the CLOSED position.
- If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these steps to check the relay wiring (SSM 28-21-21) (WDM 28-21-11) (WDM 28-21-21) (WDM 28-21-41):

- Open these circuit breakers and install safety tags:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- Remove the L MAIN TK INBD REFUEL VALVE CTRL RELAY K28116, from the SPMP P310.
- Remove the SIU 1, M24512, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- Remove the OVERFILL CONTROL RELAY K28044, from the SPMP P310.

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- (e) Do these steps to check the relay control wiring:
- 1) Do a wiring check between these pins on the relay connector DK28044 and the relay connector DK28116:

DK28044	DK28116
pin B3	pin A2

- 2) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- 3) Do a check to make sure there is 28V DC at pin X1, on connector DK28116.
- 4) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (f) Do these steps to check the relay indication wiring:
- 1) Do a wiring check between these pins on the relay connector DK28116 and the connector DM24512A, on the SPMP P310:

DK28116	DM24512A
pin A1	pin 39

- (g) Repair the wiring problems that you find.
- (h) Install the ELMS Signal Interface Unit 1 (SIU 1), M24512, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (i) Install the OVERFILL CONTROL RELAY K28044, in the SPMP P310.
- (j) Install the L MAIN TK INBD REFUEL VALVE CTRL RELAY K28116, in the SPMP P310.
- (k) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (l) Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
- (m) Wait 15 seconds.
- (n) Put the refuel valve control switch to the CLOSED position.
- (o) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

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Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (p) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Replace the left refuel valve control switch.
 - (a) To get access to and replace the refuel valve control switch, do these tasks:
Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801
Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.
 - (b) Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
 - (c) Wait 15 seconds.
 - (d) Put the refuel valve control switch to the CLOSED position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (f) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

830. RIGHT MAIN TANK INBD REFUEL VALVE CTRL RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-13124.

B. Initial Evaluation



DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (1) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (2) To get access to the integrated refuel panel (IRP) P28.

Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (b) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
- (c) Wait 15 seconds.
- (d) Put the refuel valve control switch to the CLOSED position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

C. Fault Isolation Procedure

- (1) Replace the R MAIN TK INBD REFUEL VLV CTRL Relay K28216, installed in the standby power management panel (SPMP) P310 (WDM 28-21-31).
 - (a) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
 - (b) Wait 15 seconds.
 - (c) Put the refuel valve control switch to the CLOSED position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do a check of the ELMS Signal Interface Unit 1 (SIU 1), M24512, in the SPMP P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
- (b) Wait 15 seconds.
- (c) Put the refuel valve control switch to the CLOSED position.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

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- (3) Do these steps to check the relay wiring (SSM 28-21-31) (WDM 28-21-11) (WDM 28-21-31) (WDM 28-21-41):

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

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (b) Remove the R MAIN TK INBD REFUEL VALVE CTRL RELAY K28216, from the SPMP P310.
- (c) Remove the SIU 1, M24512, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- (d) Remove the OVERFILL CONTROL RELAY K28044, from the SPMP P310.
- (e) Do these steps to check the relay control wiring:
- 1) Do a wiring check between these pins on the relay connector DK28044 and the relay connector DK28216:

DK28044	DK28216
pin B3	pin A2

- 2) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- 3) Do a check to make sure there is 28V DC at pin X1, on connector DK28216.
- 4) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (f) Do these steps to check the relay indication wiring:
- 1) Do a wiring check between these pins on the relay connector DK28116 and the connector DM24512A, on the SPMP P310:

DK28116	DM24512A
pin A1	pin 41

- (g) Repair the wiring problems that you find.
- (h) Install the ELMS Signal Interface Unit 1 (SIU 1), M24512, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (i) Install the OVERFILL CONTROL RELAY K28044, in the SPMP P310.
- (j) Install the R MAIN TK INBD REFUEL VALVE CTRL RELAY K28216, in the SPMP P310.

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

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (l) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
- (m) Wait 15 seconds.
- (n) Put the refuel valve control switch to the CLOSED position.
- (o) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (p) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Replace the right refuel valve control switch.
- (a) To get access to and replace the refuel valve control switch, do these tasks:
Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801
Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.
- (b) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
- (c) Wait 15 seconds.
- (d) Put the refuel valve control switch to the CLOSED position.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (f) Close this access door:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |

————— END OF TASK —————

831. LEFT MAIN TANK OUTBD REFUEL VALVE CTRL RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-13122.

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B. Initial Evaluation



WARNING

DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (1) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (2) To get access to the integrated refuel panel (IRP) P28.

Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (b) Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
- (c) Wait 15 seconds.
- (d) Put the refuel valve control switch to the CLOSED position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

C. Fault Isolation Procedure

- (1) Replace the L MAIN TK OUTBD REFUEL VLV CTRL Relay K28117, installed in the standby power management panel (SPMP) P310 (WDM 28-21-21).
 - (a) Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
 - (b) Wait 15 seconds.
 - (c) Put the refuel valve control switch to the CLOSED position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

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Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24513, in the SPMP P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
- (b) Wait 15 seconds.
- (c) Put the refuel valve control switch to the CLOSED position.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these steps to check the relay wiring (SSM 28-21-21) (SSM 28-21-11) (WDM 28-21-21) (SSM 28-21-41):

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

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (b) Remove the L MAIN TK OUTBD REFUEL VALVE CTRL RELAY K28117, from the SPMP P310.
- (c) Remove the SIU 2, M24513, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- (d) Remove the OVERFILL CONTROL RELAY K28044, from the SPMP P310.
- (e) Do these steps to check the relay control wiring:
- 1) Do a wiring check between these pins on the relay connector DK28044 and the relay connector DK28117:

DK28044	DK28117
pin B3	pin A2

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- 2) Remove the safety tag and close this circuit breaker:

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- 3) Do a check to make sure there is 28V DC at pin X1, on connector DK28117.
4) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (f) Do these steps to check the relay indication wiring:

- 1) Do a wiring check between these pins on the relay connector DK28117 and the connector DM24513A, on the SPMP P310:

DK28117	DM24513A
pin A1	pin 28

- (g) Repair the wiring problems that you find.
(h) Install the ELMS Signal Interface Unit 2 (SIU 2), M24513, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
(i) Install the OVERFILL CONTROL RELAY K28044, in the SPMP P310.
(j) Install the L MAIN TK OUTBD REFUEL VALVE CTRL RELAY K28117, in the SPMP P310.
(k) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (l) Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
(m) Wait 15 seconds.
(n) Put the refuel valve control switch to the CLOSED position.
(o) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (p) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
(4) Replace the left refuel valve control switch.

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- (a) To get access to and replace the refuel valve control switch, do these tasks:
Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801
Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.
- (b) Put the refuel valve control switch (on the IRP) for the left main tank, to the OPEN position.
- (c) Wait 15 seconds.
- (d) Put the refuel valve control switch to the CLOSED position.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (f) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

832. RIGHT MAIN TANK OUTBD REFUEL VALVE CTRL RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-13125.

B. Initial Evaluation



DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (1) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (2) To get access to the integrated refuel panel (IRP) P28.

Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (b) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
- (c) Wait 15 seconds.

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- (d) Put the refuel valve control switch to the CLOSED position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

C. Fault Isolation Procedure

- (1) Replace the R MAIN TK OUTBD REFUEL VLV CTRL Relay K28217, installed in the standby power management panel (SPMP) P310 (WDM 28-21-31).
 - (a) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
 - (b) Wait 15 seconds.
 - (c) Put the refuel valve control switch to the CLOSED position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24513, in the SPMP P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
 - (b) Wait 15 seconds.
 - (c) Put the refuel valve control switch to the CLOSED position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these steps to check the relay wiring (SSM 28-21-31) (WDM 28-21-11) (WDM 28-21-31) (WDM 28-21-41):
 - (a) Open these circuit breakers and install safety tags:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (b) Remove the R MAIN TK OUTBD REFUEL VALVE CTRL RELAY K28217, from the SPMP P310.
- (c) Remove the SIU 2, M24513, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- (d) Remove the OVERFILL CONTROL RELAY K28044, from the SPMP P310.
- (e) Do these steps to check the relay control wiring:
 - 1) Do a wiring check between these pins on the relay connector DK28044 and the relay connector DK28217:

DK28044	DK28217
pin B3	pin A2

- 2) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- 3) Do a check to make sure there is 28V DC at pin X1, on connector DK28217.
 - 4) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (f) Do these steps to check the relay indication wiring:
 - 1) Do a wiring check between these pins on the relay connector DK28217 and the connector DM24513A, on the SPMP P310:

DK28217	DM24513A
pin A1	pin 30

- (g) Repair the wiring problems that you find.
 - (h) Install the ELMS Signal Interface Unit 2 (SIU 2), M24513, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
 - (i) Install the OVERFILL CONTROL RELAY K28044, in the SPMP P310.
 - (j) Install the R MAIN TK OUTBD REFUEL VALVE CTRL RELAY K28217, in the SPMP P310.
- (k) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (l) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
- (m) Wait 15 seconds.
- (n) Put the refuel valve control switch to the CLOSED position.
- (o) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (p) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Replace the right refuel valve control switch.
- (a) To get access to and replace the refuel valve control switch, do these tasks:
Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801
Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.
 - (b) Put the refuel valve control switch (on the IRP) for the right main tank, to the OPEN position.
 - (c) Wait 15 seconds.
 - (d) Put the refuel valve control switch to the CLOSED position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (f) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

833. CENTER TANK LEFT REFUEL VALVE CTRL RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-13127.

B. Initial Evaluation



DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (1) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (2) To get access to the integrated refuel panel (IRP) P28.

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Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (b) Put the refuel valve control switch (on the IRP) for the center tank, to the OPEN position.
- (c) Wait 15 seconds.
- (d) Put the refuel valve control switch to the CLOSED position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

C. Fault Isolation Procedure

- (1) Replace the CENTER LEFT TK REFUEL VALVE CTRL relay K28316, installed in the standby power management panel (SPMP) P310 (WDM 28-21-21).
 - (a) Put the refuel valve control switch (on the IRP) for the center tank, to the OPEN position.
 - (b) Wait 15 seconds.
 - (c) Put the refuel valve control switch to the CLOSED position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do a check of the ELMS Signal Interface Unit 1 (SIU 1), M24512, in the SPMP P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

 - (a) Put the refuel valve control switch (on the IRP) for the center tank, to the OPEN position.

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- (b) Wait 15 seconds.
- (c) Put the refuel valve control switch to the CLOSED position.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these steps to check the relay wiring (SSM 28-21-21) (WDM 28-21-11) (WDM 28-21-21) (WDM 28-21-41):

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

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (b) Remove the CENTER LEFT TK REFUEL VALVE CTRL relay, K28316, from the SPMP P310.
- (c) Remove the SIU 1, M24512, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- (d) Remove the OVERFILL CONTROL RELAY K28044, from the SPMP P310.
- (e) Do these steps to check the relay control wiring:
 - 1) Do a wiring check between these pins on the relay connector DK28044 and the relay connector DK28316:

<u>DK28044</u>	<u>DK28316</u>
pin B3	pin A2

- 2) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- 3) Do a check to make sure there is 28V DC at pin X1, on connector DK28316.
- 4) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (f) Do these steps to check the relay indication wiring:
 - 1) Do a wiring check between these pins on the relay connector DK28316 and the connector DM24512A, on the SPMP P310:

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DK28316

pin A1

DM244512A

pin 40

- (g) Repair the wiring problems that you find.
- (h) Install the ELMS Signal Interface Unit 1 (SIU 1), M24512, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (i) Install the OVERFILL CONTROL RELAY K28044, in the SPMP P310.
- (j) Install the CENTER LEFT TK REFUEL VALVE CTRL relay K28316, in the SPMP P310.
- (k) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (l) Put the refuel valve control switch (on the IRP) for the center tank, to the OPEN position.
- (m) Wait 15 seconds.
- (n) Put the refuel valve control switch to the CLOSED position.
- (o) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— **END OF TASK** —————

834. CENTER TANK RIGHT REFUEL VALVE CTRL RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-13128.

B. Initial Evaluation



DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (1) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (2) To get access to the integrated refuel panel (IRP) P28.

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (b) Put the refuel valve control switch (on the IRP) for the center tank, to the OPEN position.
- (c) Wait 15 seconds.
- (d) Put the refuel valve control switch to the CLOSED position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

C. Fault Isolation Procedure

- (1) Replace the CTR R TK REFUEL VLV CTRL Relay K28317, installed in the standby power management panel (SPMP) P310 (WDM 28-21-31).
 - (a) Put the refuel valve control switch (on the IRP) for the center tank, to the OPEN position.
 - (b) Wait 15 seconds.
 - (c) Put the refuel valve control switch to the CLOSED position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24513, in the SPMP P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Put the refuel valve control switch (on the IRP) for the center tank, to the OPEN position.
 - (b) Wait 15 seconds.
 - (c) Put the refuel valve control switch to the CLOSED position.

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

Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these steps to check the relay wiring (SSM 28-21-31) (WDM 28-21-11) (WDM 28-21-31) (WDM 28-21-41):

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

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (b) Remove the CTR R TK REFUEL VALVE CTRL relay K28317, from the SPMP P310.
- (c) Remove the SIU 2, M24513, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- (d) Remove the OVERFILL CONTROL RELAY K28044, from the SPMP P310.
- (e) Do these steps to check the relay control wiring:
- 1) Do a wiring check between these pins on the relay connector DK28044 and the relay connector DK28317:

<u>DK28044</u>	<u>DK28317</u>
pin B3	pin A2

- 2) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- 3) Do a check to make sure there is 28V DC at pin X1, on connector DK28317.
- 4) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (f) Do these steps to check the relay indication wiring:
- 1) Do a wiring check between these pins on the relay connector DK28317 and the connector DM24513A, on the SPMP P310:

<u>DK28317</u>	<u>DM24513A</u>
pin A1	pin 31

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- (g) Repair the wiring problems that you find.
- (h) Install the ELMS Signal Interface Unit 2 (SIU 2), M24513, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (i) Install the OVERFILL CONTROL RELAY K28044, in the SPMP P310.
- (j) Install the CTR R TK OUTBD REFUEL VALVE CTRL RELAY K28317, in the SPMP P310.
- (k) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C28626	RFLNG VLVS GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	9	C28601	RFLNG VLVS

- (l) Put the refuel valve control switch (on the IRP) for the center tank, to the OPEN position.
- (m) Wait 15 seconds.
- (n) Put the refuel valve control switch to the CLOSED position.
- (o) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— **END OF TASK** —————

835. Refuel Panel Door Relay (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20046.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C28603	RFLNG CTRL GND

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	8	C28600	RFLNG CTRL

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DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (b) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (c) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- (d) Wait 15 seconds.
- (e) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- (f) If the MAT shows ACTIVE or LATCHED for the maintenance message, do the Fault Isolation procedure below.
- (g) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) If all refueling valves are inoperative, replace the Refueling Station Door Proximity Switch, S28032, in the P28 Panel door (WDM 28-21-11).

These are the tasks:

Refueling Station Door Proximity Switch - Removal, AMM TASK 28-21-06-000-801,

Refueling Station Door Proximity Switch - Installation, AMM TASK 28-21-06-400-801.

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- (b) Wait 15 seconds.
- (c) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or the maintenance message does not show), you corrected the fault.
- (e) If the MAT shows as ACTIVE for the maintenance message, then continue.
- (2) Replace the Refuel Panel door relay K28009, in the standby power management panel (SPMP) P310 (WDM 28-21-11).
 - (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
 - (b) Wait 15 seconds.

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- (c) Close this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or the maintenance message does not show), you corrected the fault.
- (e) If the MAT shows as ACTIVE for the maintenance message, then continue.
- (3) Do a check of the ELMS Signal Interface Unit 1 (SIU1), M24512, and ELMS Signal Interface Unit 2 (SIU2), M24513 in the SPMP P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Open this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (b) Wait 15 seconds.
- (c) Close this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Do these steps to check the relay wiring (WDM 28-21-11):
- (a) Open these circuit breakers and install safety tags:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C28603	RFLNG CTRL GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	8	C28600	RFLNG CTRL

- (b) Remove the Refuel Panel Door Relay K28009, from the SPMP P310.
- (c) Remove the ELMS Signal Interface Unit 1 (SIU1), M24512, and ELMS Signal Interface Unit 2 (SIU2), M24513 in the SPMP P310. To remove them, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002
- (d) Do these steps to check the relay control wiring:
- 1) Remove the safety tag and close this circuit breaker:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C28603	RFLNG CTRL GND

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- 2) Make sure this access panel is closed:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- 3) Make sure there is continuity between pin X2, on connector DK28009 and structure ground.
- 4) Make sure there is 28V DC at pin X1, on connector DK28009.
- 5) Open this circuit breaker and install safety tag:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C28603	RFLNG CTRL GND

- 6) Do a wiring check between these pins on relay connector DK28009 and connector DM24512C, on the SPMP P310:

DK28009	DM24512C
pin X2	pin 34

- (e) Do these steps to check the relay indication wiring:

- 1) Do a wiring check between these pins on connector DM24513A on the SIU 2, M24513, and the relay connector DK28009, on the SPMP P310:

DK28009	DM24513A
pin A1	pin 29

- (f) Repair the wiring.
- (g) Install the ELMS Signal Interface Unit 1 (SIU1), M24512, and ELMS Signal Interface Unit 2 (SIU2), M24513 in the SPMP P310. To install them, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002
- (h) Install the Refuel Panel Door Relay K28009, in the SPMP P310.
- (i) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C28603	RFLNG CTRL GND

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	8	C28600	RFLNG CTRL

- (j) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (k) Wait 15 seconds.

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- (l) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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

———— **END OF TASK** ————

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801. AFT CROSSFEED Switch - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43010.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the maintenance message on the maintenance access terminal (MAT).
 - (b) Push the FUEL CROSSFEED AFT switch, on the overhead panel P5, to the OPEN and to the CLOSED positions.

NOTE: Wait 15 seconds, each time the switch position is changed, for the maintenance message to show.
 - (c) If the MAT shows ACTIVE for the maintenance message when the switch is in the OPEN or CLOSED positions, then do the Fault Isolation procedure below.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the OPEN or CLOSED positions, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the FUEL CROSSFEED AFT switch S8 (WDM 28-22-24). To replace the switch, do this task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.
 - (a) Push the FUEL CROSSFEED AFT switch to the OPEN and CLOSED positions.

NOTE: Wait 15 seconds, each time the switch position is changed, for the maintenance message to show.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the OPEN or CLOSED positions, you corrected the fault.
 - (c) If the MAT shows ACTIVE for the maintenance message when the switch is in the OPEN or CLOSED positions, then continue.
- (2) Do this check of the wiring:
 - (a) Lower the right overhead circuit breaker panel P11, to get access to the connector DM23217J on the overhead cardfile panel (OPC) P61.
 - (b) Remove the connector DM23217J from the OPC P61 (WDM 28-22-24).
 - (c) Push the FUEL CROSSFEED AFT switch to the OPEN position.
 - (d) Do this continuity check between these pins on the connector DM23217J, at the OPC P61:

DM23217J	DM23217J
pin A14	pin A15

- (e) Push the FUEL CROSSFEED AFT switch to the CLOSED position.
- (f) Do this continuity check between these pins on the connector DM23217J:

DM23217J	DM23217J
pin A13	pin A15

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- (g) Repair the wiring (WDM 28-22-24).
 - (h) Push the FUEL CROSSFEED AFT switch to the OPEN and CLOSED positions.
NOTE: Wait 15 seconds, each time the switch position is changed, for the maintenance message to show.
 - (i) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the OPEN or CLOSED positions, you corrected the fault.
 - (j) If the MAT shows ACTIVE for the maintenance message when the switch is in the OPEN or CLOSED positions, then continue.
- (3) Replace the right overhead cardfile chassis, M23217.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,

Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

- (a) Push the FUEL CROSSFEED AFT switch to the OPEN and CLOSED positions.
NOTE: Wait 15 seconds, each time the switch position is changed, for the maintenance message to show.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the OPEN or CLOSED positions, you corrected the fault.

————— **END OF TASK** —————

802. FWD CROSSFEED Switch - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43300.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the maintenance message on the maintenance access terminal (MAT).
 - (b) Push the FUEL CROSSFEED FWD switch, on the overhead panel P5, to the OPEN and CLOSED position.
NOTE: Wait 15 seconds, each time the switch position is changed, for the maintenance message to show.
 - (c) If the MAT shows ACTIVE for the maintenance message when the switch is in the OPEN or CLOSED positions, then do the Fault Isolation procedure below.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the OPEN or CLOSED positions, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the FUEL CROSSFEED FWD switch S7 (WDM 28-22-14). To replace the switch, do this task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.
 - (a) Push the FUEL CROSSFEED FWD switch to the OPEN and CLOSED position two times.
NOTE: Wait 15 seconds, each time the switch position is changed, for the maintenance message to show.

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- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the OPEN or CLOSED positions, you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message when the switch is in the OPEN or CLOSED positions, then continue.
- (2) Do this check of the wiring:
 - (a) Lower the left overhead circuit breaker panel P11, to get access to the connector DM23117J on the left overhead cardfile panel (OPC) P61.
 - (b) Remove the connector DM23117J from the OPC P61 (WDM 28-22-14).
 - (c) Push the FUEL CROSSFEED FWD switch to the ON position.
 - (d) Do this continuity check between these pins on the connector DM23117J, at the OPC P61:

DM23117J	DM23117J
pin B2	pin B3

- (e) Push the FWD CROSSFEED switch to the OFF position.
- (f) Do this continuity check between these pins on the connector DM23117J:

DM23117J	DM23117J
pin B3	pin B1

- (g) Repair the wiring (WDM 28-22-14).
- (h) Push the FUEL CROSSFEED FWD switch to the OPEN and CLOSED position two times.
NOTE: Wait 15 seconds, each time the switch position is changed, for the maintenance message to show.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the OPEN or CLOSED positions, you corrected the fault.
- (j) If the MAT shows ACTIVE for the maintenance message when the switch is in the OPEN or CLOSED positions, then continue.
- (3) Replace the left overhead cardfile chassis, M23117.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,

Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

- (a) Push the FUEL CROSSFEED FWD switch to the OPEN and CLOSED position two times.
NOTE: Wait 15 seconds, each time the switch position is changed, for the maintenance message to show.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the OPEN or CLOSED positions, you corrected the fault.

————— **END OF TASK** —————

803. Fuel Shutoff Valve Battery - Fault Isolation

A. **Maintenance Messages**

- (1) This task is for maintenance message: 23-43270.

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B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
 - (a) Lower the left overhead circuit breaker panel P11, to get access to the connector DM23117N on the left overhead cardfile panel (OPC) P61.
 - (b) Remove the connector DM23117N from the OPC P61 (WDM 28-22-31).
 - (c) Do a continuity check between pin B19 and pin B20, on the connector DM23117N.
 - (d) If there is no continuity, repair the wiring (WDM 28-22-31).
 - (e) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
 - (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the left overhead cardfile chassis, M23117.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,

Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

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

————— **END OF TASK** —————

804. CENTER L FUEL PUMP Switch - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43410.

B. Initial Evaluation



DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is more than 5000 LB (2300 KG) of fuel in the center fuel tank for this procedure.

NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.

 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:

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- (a) Monitor the maintenance message on the maintenance access terminal (MAT).
- (b) Push the CENTER L PUMPS switch, on the overhead panel P5, to the ON position for 15 seconds.
- (c) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.
- (e) Push the CENTER L PUMPS switch to the OFF position.

C. Fault Isolation Procedure

- (1) Replace the CENTER L PUMPS switch M28001S11 (WDM 28-22-13). To replace the switch, do this task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.
 - (a) Push the CENTER L PUMPS switch to the ON position for 15 seconds.
 - (b) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
 - (c) Push the CENTER L PUMPS switch to the OFF position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - (e) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (2) Do this check of the wiring:
 - (a) Lower the left overhead circuit breaker panel P11, to get access to the connector DM23117J on the left overhead cardfile panel (OPC) P61.
 - (b) Disconnect the connector DM23117J from the OPC P61 (WDM 28-22-13).
 - (c) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (d) Push the CENTER L PUMPS switch to the ON position.
- (e) Do this continuity check between these pins on the connector DM23117J, at the left OPC P61:

DM23117J	DM23117J
pin A18	pin A19

- (f) Push the CENTER L PUMPS switch to the OFF position.
- (g) Do this continuity check between these pins on the connector DM23117J:

DM23117J	DM23117J
pin A17	pin A19

- (h) If there is no continuity in the first or second check, repair the wiring (WDM 28-22-13).
- (i) Connect the connector DM23117J to the OPC P61.

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- (j) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (k) Push the CENTER L PUMPS switch to the ON position for 15 seconds.
- (l) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
- (m) Push the CENTER L PUMPS switch to the OFF position.
- (n) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (o) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (3) Replace the left overhead cardfile chassis, M23117.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,

Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

- (a) Push the CENTER L PUMPS switch to the ON position for 15 seconds.
- (b) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
- (c) Push the CENTER L PUMPS switch to the OFF position.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— END OF TASK —————

805. CENTER R FUEL PUMP Switch - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43770.

B. Initial Evaluation



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
- (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is more than 5000 LB (2300 KG) of fuel in the center fuel tank for this procedure.
- NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.
- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).

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- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the maintenance message on the maintenance access terminal (MAT).
 - (b) Push the CENTER R PUMPS switch, on the overhead panel P5, to the ON position for 15 seconds.
 - (c) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation procedure below.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.
 - (e) Push the CENTER R PUMPS switch to the OFF position.

C. Fault Isolation Procedure

- (1) Replace the CENTER R PUMPS switch M28001S12 (WDM 28-22-23). To replace the switch, do this task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.
 - (a) Push the CENTER R PUMPS switch to the ON position for 15 seconds.
 - (b) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
 - (c) Push the CENTER R PUMPS switch to the OFF position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - (e) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (2) Do this check of the wiring:
 - (a) Lower the right overhead circuit breaker panel P11, to get access to the connector DM23217J on the right overhead cardfile panel (OPC) P61.
 - (b) Disconnect the connector DM23217J from the OPC P61 (WDM 28-22-23).
 - (c) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (d) Push the CENTER R PUMPS switch to the ON position.
- (e) Do this continuity check between these pins on the connector DM23217J, at the right OPC P61:

DM23217J	DM23217J
pin B2	pin B3

- (f) Push the CENTER R PUMPS switch to the OFF position.
- (g) Do this continuity check between these pins on the connector DM23217J:

DM23217J	DM23217J
pin B1	pin B3

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- (h) If there is no continuity in the first or second check, repair the wiring (WDM 28-22-23).
- (i) Connect the connector DM23217J to the OPC P61.
- (j) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (k) Push the CENTER R PUMPS switch to the ON position for 15 seconds.
 - (l) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
 - (m) Push the CENTER R PUMPS switch to the OFF position.
 - (n) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - (o) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (3) Replace the right overhead cardfile chassis, M23217.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,

Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

- (a) Push the CENTER R PUMPS switch to the ON position for 15 seconds.
- (b) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
- (c) Push the CENTER R PUMPS switch to the OFF position.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— **END OF TASK** —————

806. L FWD FUEL PUMP Switch - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43350.

B. Initial Evaluation



DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.

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- (2) Make sure there is more than 1000 LB (500 KG) of fuel in the left main tank for this procedure (AMM TASK 12-11-01-650-801).

NOTE: This fuel quantity will prevent dry operation of the fuel pumps.

- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the maintenance message on the maintenance access terminal (MAT).
 - (b) Push the L PUMPS FWD switch, on the overhead panel P5, to the ON position for 15 seconds.
 - (c) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation procedure below.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.
 - (e) Push the L PUMPS FWD switch to the OFF position.

C. Fault Isolation Procedure

- (1) Replace the L PUMPS FWD switch M28001S5 (WDM 28-22-11). To replace the switch, do this task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.
 - (a) Push the L PUMPS FWD switch to the ON position for 15 seconds.
 - (b) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
 - (c) Push the L PUMPS FWD switch to the OFF position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - (e) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (2) Do this check of the wiring:
 - (a) Lower the left overhead circuit breaker panel P11, to get access to the connector DM23117J on the left overhead cardfile panel (OPC) P61.
 - (b) Disconnect the connector DM23117J from the OPC P61 (WDM 28-22-11).
 - (c) Open this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (d) Push the L PUMPS FWD switch to the ON position.
- (e) Do this continuity check between these pins on the connector DM23117J, at the left OPC P61:

DM23117J	DM23117J
pin A15	pin A14

- (f) Push the L PUMPS FWD switch to the OFF position.
- (g) Do this continuity check between these pins on the connector DM23117J:

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DM23117J

pin A15

DM23117J

pin A13

- (h) If there is no continuity in the first or second check, repair the wiring (WDM 28-22-11).
- (i) Connect the connector DM23117J to the OPC P61.
- (j) Close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (k) Push the L PUMPS FWD switch to the ON position for 15 seconds.
 - (l) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
 - (m) Push the L PUMPS FWD switch to the OFF position.
 - (n) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - (o) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (3) Replace the left overhead cardfile chassis, M23117.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,

Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

- (a) Push the L PUMPS FWD switch to the ON position for 15 seconds.
- (b) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
- (c) Push the L PUMPS FWD switch to the OFF position.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— **END OF TASK** —————

807. R FWD FUEL PUMP Switch - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43800.

B. Initial Evaluation

 WARNING	DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.

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- (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is more than 1000 LB (500 KG) of fuel in the right main tank for this procedure (AMM TASK 12-11-01-650-801).
NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the maintenance message on the maintenance access terminal (MAT).
 - (b) Push the R PUMPS FWD switch, on the overhead panel P5, to the ON position for 15 seconds.
 - (c) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation procedure below.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.
 - (e) Push the R PUMPS FWD switch to the OFF position.

C. Fault Isolation Procedure

- (1) Replace the R PUMPS FWD switch M28001S9 (WDM 28-22-21). To replace the switch, do this task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.
 - (a) Push the R PUMPS FWD switch to the ON position for 15 seconds.
 - (b) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
 - (c) Push the R PUMPS FWD switch to the OFF position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - (e) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (2) Do this check of the wiring:
 - (a) Lower the right overhead circuit breaker panel P11, to get access to the connector DM23217J on the right overhead cardfile panel (OPC) P61.
 - (b) Remove the connector DM23217J from the OPC P61 (WDM 28-22-21).
 - (c) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

- (d) Push the R PUMPS FWD switch to the ON position.
- (e) Do this continuity check between these pins on the connector DM23217J, at the right OPC P61:

DM23217J	DM23217J
pin A18	pin A19
- (f) Push the R PUMPS FWD switch to the OFF position.

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- (g) Do this continuity check between these pins on the connector DM23217J:

DM23217J	DM23217J
pin A17	pin A19

- (h) If there is no continuity in the first or second check, repair the wiring (WDM 28-22-21).
(i) Install the connector DM23217J to the OPC P61.
(j) Close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

- (k) Push the R PUMPS FWD switch to the ON position for 15 seconds.
(l) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
(m) Push the R PUMPS FWD switch to the OFF position.
(n) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
(o) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (3) Replace the right overhead cardfile chassis, M23217.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,

Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

- (a) Push the R PUMPS FWD switch to the ON position for 15 seconds.
(b) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
(c) Push the R PUMPS FWD switch to the OFF position.
(d) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— END OF TASK —————

808. L AFT FUEL PUMP Switch - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43380.

B. Initial Evaluation

 WARNING	DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.

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- (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is more than 1000 LB (500 KG) of fuel in the left main tank for this procedure (AMM TASK 12-11-01-650-801).
NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the maintenance message on the maintenance access terminal (MAT).
 - (b) Push the L PUMPS AFT switch, on the overhead panel P5, to the ON position for 15 seconds.
 - (c) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation procedure below.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.
 - (e) Push the L PUMPS AFT switch to the OFF position.

C. Fault Isolation Procedure

- (1) Replace the L PUMPS AFT switch M28001S6 (WDM 28-22-12). To replace the switch, do this task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.
 - (a) Push the L PUMPS AFT switch to the ON position for 15 seconds.
 - (b) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
 - (c) Push the L PUMPS AFT switch to the OFF position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (e) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (2) Do this check of the wiring:
 - (a) Lower the right overhead circuit breaker panel P11, to get access to the connector DM23217J on the right overhead cardfile panel (OPC) P61.
 - (b) Disconnect the connector DM23217J from the OPC P61 (WDM 28-22-12).
 - (c) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- (d) Push the L PUMPS AFT switch to the ON position.
- (e) Do this continuity check between these pins on the connector DM23217J, at the OPC P61:

DM23217J	DM23217J
pin A11	pin A10
- (f) Push the L PUMPS AFT switch to the OFF position.

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- (g) Do this continuity check between these pins on the connector DM23217J:

DM23217J	DM23217J
pin A11	pin A9

- (h) If there is no continuity for the first or second check, repair the wiring (WDM 28-22-12).
(i) Connect the connector DM23217J to the OPC P61 (WDM 28-22-12).
(j) Close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- (k) Push the L PUMPS AFT switch to the ON position for 15 seconds.
(l) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
(m) Push the L PUMPS AFT switch to the OFF position.
(n) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
(o) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (3) Replace the right overhead cardfile chassis, M23217.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,
Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

- (a) Push the L PUMPS AFT switch to the ON position for 15 seconds.
(b) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
(c) Push the L PUMPS AFT switch to the OFF position.
(d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— END OF TASK —————

809. R AFT FUEL PUMP Switch - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43740.

B. Initial Evaluation

 WARNING	DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.

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- (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is more than 1000 LB (500 KG) of fuel in the right main tank for this procedure (AMM TASK 12-11-01-650-801).
NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the maintenance message on the maintenance access terminal (MAT).
 - (b) Push the R PUMPS AFT switch, on the overhead panel P5, to the ON position for 15 seconds.
 - (c) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation procedure below.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.
 - (e) Push the R PUMPS AFT switch to the OFF position.

C. Fault Isolation Procedure

- (1) Replace the R PUMPS AFT switch M28001S10 (WDM 28-22-22). To replace the switch, do this task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.
 - (a) Push the R PUMPS AFT switch to the ON position for 15 seconds.
 - (b) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
 - (c) Push the R PUMPS AFT switch to the OFF position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (e) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (2) Do this check of the wiring:
 - (a) Lower the left overhead circuit breaker panel P11, to get access to the connector DM23117J on the left overhead cardfile panel (OPC) P61.
 - (b) Disconnect the connector DM23117J from the OPC P61 (WDM 28-22-22).
 - (c) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- (d) Push the R PUMPS AFT switch to the ON position.
- (e) Do this continuity check between these pins on the connector DM23117J, at the OPC P61:

DM23117J	DM23117J
pin B11	pin B10

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- (f) Push the R PUMPS AFT switch to the OFF position.
- (g) Do this continuity check between these pins on the connector DM23117J:

DM23117J	DM23117J
pin B11	pin B9

- (h) If there is no continuity for the first or second check, repair the wiring (WDM 28-22-22).
- (i) Connect the connector DM23117J to the OPC P61 (WDM 28-22-22).
- (j) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- (k) Push the R PUMPS AFT switch to the ON position for 15 seconds.
 - (l) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
 - (m) Push the R PUMPS AFT switch to the OFF position.
 - (n) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (o) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (3) Replace the left overhead cardfile chassis, M23117.
- These are the tasks:
- Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,
Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.
- (a) Push the R PUMPS AFT switch to the ON position for 15 seconds.
 - (b) Make sure the MAT shows NOT ACTIVE for the maintenance message (or that the message does not show).
 - (c) Push the R PUMPS AFT switch to the OFF position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

———— **END OF TASK** ————

810. L ENG FUEL SPAR VLV CONTROL RLY (L OPC P61) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43530.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the maintenance message on the maintenance access terminal (MAT).

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- (b) Put the L FUEL CONTROL switch to the RUN and CUTOFF positions, on the control stand P10.
NOTE: Wait 15 seconds each time the switch position is changed, to let the engine fuel spar valve go to the commanded position.
- (c) If the MAT shows ACTIVE for the maintenance message when the switch is in the RUN or CUTOFF position, then do the Fault Isolation procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the RUN and CUTOFF positions, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
 - (a) Lower the left overhead circuit breaker panel P11, to get access to the connector DM23117N on the overhead cardfile panel (OPC) P61.
 - (b) Remove the connector DM23117N from the OPC P61 (WDM 28-22-15).
 - (c) Do this continuity check between these pins on the connector DM23117N, on the OPC P61:

DM23117N	DM23117N
pin B17	pin B18
 - (d) If there is no continuity, repair the wiring (WDM 28-22-15).
 - (e) Install the connector DM23117N.
 - (f) Close the left overhead circuit breaker panel P11.
 - (g) Put the L FUEL CONTROL switch to the RUN and CUTOFF positions.
NOTE: Wait 15 seconds each time the switch position is changed, to let the engine fuel spar valve go to the commanded position.
 - (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the RUN and CUTOFF positions, you corrected the fault.
 - (i) If the MAT shows ACTIVE for the maintenance message when the switch is in the RUN or CUTOFF position, then continue.
- (2) Replace the left overhead cardfile chassis, M23117.
These are the tasks:
Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,
Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.
 - (a) Put the L FUEL CONTROL switch to the RUN and CUTOFF positions.
NOTE: Wait 15 seconds each time the switch position is changed, to let the engine fuel spar valve go to the commanded position.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the RUN and CUTOFF positions, you corrected the fault.

————— **END OF TASK** —————

811. R ENG FUEL SPAR VLV CONTROL RLY (R OPC P61) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43880.

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B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the maintenance message on the maintenance access terminal (MAT).
 - (b) Put the R FUEL CONTROL switch to the RUN and CUTOFF positions, on the control stand P10.

NOTE: Wait 15 seconds each time the switch position is changed, to let the engine fuel spar valve go to the commanded position.
 - (c) If the MAT shows ACTIVE for the maintenance message when the switch is in the RUN or CUTOFF position, then do the Fault Isolation procedure below.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the RUN and CUTOFF positions, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
 - (a) Lower the right overhead circuit breaker panel P11, to get access to the connector DM23217N on the right overhead cardfile panel (OPC) P61.
 - (b) Disconnect the connector DM23217N from the OPC P61 (WDM 28-22-25).
 - (c) Do this continuity check between these pins on the connector DM23217N, on the OPC P61:

DM23217N	DM23217N
pin B17	pin B18
 - (d) If there is no continuity, repair the wiring (WDM 28-22-25).
 - (e) Install the connector DM23217N.
 - (f) Close the right overhead circuit breaker panel P11.
 - (g) Put the R FUEL CONTROL switch to the RUN and CUTOFF positions.

NOTE: Wait 15 seconds each time the switch position is changed, to let the engine fuel spar valve go to the commanded position.
 - (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the RUN and CUTOFF positions, you corrected the fault.
 - (i) If the MAT shows ACTIVE for the maintenance message when the switch is in the RUN or CUTOFF position, then continue.
- (2) Replace the right overhead cardfile chassis, M23217.

These are the tasks:
Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,
Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

 - (a) Put the R FUEL CONTROL switch to the RUN and CUTOFF positions.

NOTE: Wait 15 seconds each time the switch position is changed, to let the engine fuel spar valve go to the commanded position.

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- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the RUN and CUTOFF positions, you corrected the fault.

————— **END OF TASK** —————

812. L ENG FUEL SPAR VLV (L OPC P61) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43540.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:
- (a) Monitor the maintenance message on the maintenance access terminal (MAT).
 - (b) Put the L FUEL CONTROL switch to the RUN and CUTOFF position, on the control stand P10.
- NOTE: Wait 15 seconds each time the switch position is changed, to let the engine fuel spar valve go to the commanded position.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the RUN and CUTOFF positions, there was an intermittent fault.
- (d) If the MAT shows ACTIVE for the maintenance message when the switch is in the RUN or CUTOFF position, then do the Fault Isolation procedure below.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
- (a) Lower the left overhead circuit breaker panel P11, to get access to the connector DM23117N on the left overhead panel cardfile (OPC) P61.
 - (b) Remove the connector DM23117N from the left OPC P61 (WDM 28-22-15).
 - (c) Do this continuity check between these pins on the connector DM23117N:
- | | |
|------------------|-----------------|
| DM23117N | DM23117N |
| pin 15 | pin 16 |
- (d) If there is no continuity, repair the wiring (WDM 28-22-15).
 - (e) Install the connector DM23117N.
 - (f) Close the left overhead circuit breaker panel P11.
 - (g) Put the L FUEL CONTROL switch to the RUN and CUTOFF positions.
- NOTE: Wait 15 seconds each time the switch position is changed, to let the engine fuel spar valve go to the commanded position.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the RUN and CUTOFF positions, you corrected the fault.
 - (i) If the MAT shows ACTIVE for the maintenance message when the switch is in the RUN or CUTOFF position, then continue.
- (2) Replace the left overhead cardfile chassis, M23117.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,

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Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

- (a) Put the L FUEL CONTROL switch to the RUN and CUTOFF positions.

NOTE: Wait 15 seconds each time the switch position is changed, to let the engine fuel spar valve go to the commanded position.

- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the RUN and CUTOFF positions, you corrected the fault.

————— **END OF TASK** —————

813. **R ENG FUEL SPAR VLV (R OPC P61) - Fault Isolation**

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43890.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.

- (2) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:

- (a) Monitor the maintenance message on the maintenance access terminal (MAT).
(b) Put the R FUEL CONTROL switch to the RUN and CUTOFF position, on the control stand P10.

NOTE: Wait 15 seconds each time the switch position is changed, to let the engine fuel spar valve go to the commanded position.

- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the RUN and CUTOFF positions, there was an intermittent fault.
(d) If the MAT shows ACTIVE for the maintenance message when the switch is in the RUN or CUTOFF position, then do the Fault Isolation procedure below.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
(a) Lower the right overhead circuit breaker panel P11, to get access to the connector DM23117N on the right overhead panel cardfile (OPC) P61.
(b) Remove the connector DM23217N from the right OPC P61 (WDM 28-22-25).
(c) Do this continuity check between these pins on the connector DM23217N:

DM23217N	DM23217N
pin 15	pin 16

- (d) If there is no continuity, repair the wiring (WDM 28-22-25).
(e) Install the connector DM23217N.
(f) Close the right overhead circuit breaker panel P11.
(g) Put the R FUEL CONTROL switch to the RUN and CUTOFF positions.

NOTE: Wait 15 seconds each time the switch position is changed, to let the engine fuel spar valve go to the commanded position.

- (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the RUN and CUTOFF positions, you corrected the fault.

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- (i) If the MAT shows ACTIVE for the maintenance message when the switch is in the RUN or CUTOFF position, then continue.
- (2) Replace the right overhead cardfile chassis, M23217.
These are the tasks:
Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,
Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.
 - (a) Put the R FUEL CONTROL switch to the RUN and CUTOFF positions.
NOTE: Wait 15 seconds each time the switch position is changed, to let the engine fuel spar valve go to the commanded position.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the RUN and CUTOFF positions, you corrected the fault.

— END OF TASK —

840. Fuel Spar Valve, Left Engine (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-14001.

B. General

- (1) If the L ENG FIRE switch is pulled and the L ENG RUN/CUTOFF switch is at RUN for more than 10 seconds, this fault will latch. Do this task to erase the latched STATUS message.

C. Initial Evaluation

- (1) To make sure the fault was not intermittent, do these steps:
 - (a) Make sure that this circuit breaker is closed:
Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C28001	L ENGINE FUEL SPAR VALVE
 - (b) If the MAT shows LATCHED for the correlated status message, then you must erase it from the EICAS status display. To erase it, do this task: Erasing a Latched EICAS Message (AMM TASK 31-61-00-800-802).
 - (c) Put the L ENG RUN/CUTOFF switch, on the Control Stand P10, to the RUN position.
 - 1) Monitor the fuel synoptic page or the fuel management page to make sure the spar valve moves to the open position.
 - (d) Wait 15 seconds.
 - (e) Put the L ENG RUN/CUTOFF switch, on the Control Stand P10, to the CUTOFF position.
 - 1) Monitor the fuel synoptic page or the fuel management page to make sure the spar valve moves to the closed position.
 - (f) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation procedure below.
 - (g) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.
 - 1) If there was an intermittent fault, a fault in the valve actuator can be the cause.
NOTE: The replacement of the valve actuator is an optional step that can help decrease repeated intermittent faults.

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- a) To decrease repeated intermittent faults, it is recommended to replace the valve actuator:
 - <1> Do this task: Engine Fuel Spar Valve Actuator - Removal, AMM TASK 28-22-02-000-802.
 - <2> Do this task: Engine Fuel Spar Valve Actuator - Installation, AMM TASK 28-22-02-400-802.

D. Fault Isolation Procedure

- (1) Replace the L Engine Fuel Spar Valve Actuator, V28164.

These are the tasks:

Engine Fuel Spar Valve Actuator - Removal, AMM TASK 28-22-02-000-802,

Engine Fuel Spar Valve Actuator - Installation, AMM TASK 28-22-02-400-802.

- (a) If the MAT shows LATCHED for the correlated status message, then you must erase it from the EICAS status display. To erase it, do this task: Erasing a Latched EICAS Message (AMM TASK 31-61-00-800-802).
 - (b) Put the L ENG RUN/CUTOFF switch, on the Control Stand P10, to the RUN position.
 - (c) Wait 15 seconds.
 - (d) Put the L ENG RUN/CUTOFF switch, on the Control Stand P10, to the CUTOFF position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the L ENG FUEL SPAR VLV CTRL Relay K28122, installed in the E1-4 Shelf (WDM 28-22-15).
 - (a) If the MAT shows LATCHED for the correlated status message, then you must erase it from the EICAS status display. To erase it, do this task: Erasing a Latched EICAS Message (AMM TASK 31-61-00-800-802).
 - (b) Put the L ENG RUN/CUTOFF switch, on the Control Stand P10, to the RUN position.
 - (c) Wait 15 seconds.
 - (d) Put the L ENG RUN/CUTOFF switch, on the Control Stand P10, to the CUTOFF position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (f) If the MAT shows ACTIVE for the maintenance message, then continue.
 - (3) Replace the L ENG FUEL SPAR/IGN Relay K76102, in the Left Power Management Panel (LPMP) P110 (WDM 28-22-15).
 - (a) If the MAT shows LATCHED for the correlated status message, then you must erase it from the EICAS status display. To erase it, do this task: Erasing a Latched EICAS Message (AMM TASK 31-61-00-800-802).
 - (b) Put the L ENG RUN/CUTOFF switch, on the Control Stand P10, to the RUN position.
 - (c) Wait 15 seconds.
 - (d) Put the L ENG RUN/CUTOFF switch, on the Control Stand P10, to the CUTOFF position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (f) If the MAT shows ACTIVE for the maintenance message, then continue.
 - (4) Do these steps to check the wiring (WDM 28-22-15):

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- (a) Open this circuit breaker and install safety tag:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C28001	L ENGINE FUEL SPAR VALVE

- (b) Remove the Left Engine Fire Shutoff Switch S26101, from the Aisle Stand P8. To remove it, do this task: Engine Fire Switch Removal, AMM TASK 26-21-03-000-801.
- (c) Remove the L ENG FUEL SPAR VLV RELAY K28122, from the E1-4 Shelf.
- (d) Remove the L ENG FUEL SPAR/IGN RELAY K76102, from the LPMP P110.
- (e) Disconnect the electrical connector DV28164 from the actuator for the Left Engine Fuel Spar Valve V28164 (AMM TASK 28-22-02-000-802).
- (f) Do these steps to check the actuator power and control wiring:
- 1) Remove the safety tag and close this circuit breaker:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C28001	L ENGINE FUEL SPAR VALVE

- 2) Make sure there is 28V DC at pin 16 on connector DS26101.
- 3) Open this circuit breaker and install safety tag:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C28001	L ENGINE FUEL SPAR VALVE

- 4) Make sure there is continuity between pin 4, on the actuator connector DV28164 and structure ground.
- 5) Do a wiring check between the fire shutoff switch connector DS26101, on the P10 control stand, through the terminal block, to actuator connector DV28164:

DS26101	DV28164
pin 32	pin 6
pin 32	pin 5

- 6) Do a wiring check between these pins of relay connector DK28122, on the E1-4 Shelf, through the terminal block, to actuator connector DV28164:

DK28122	DV28164
pin A1	pin 2
pin A3	pin 6
pin A3	pin 5

- 7) Do a wiring check between these pins of fire shutoff switch connector DS26101, on the P10 control stand and the relay connector DK28122, on the E1-4 Shelf:

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DS26101	DK28122
pin 33	pin Y1
pin 33	pin A2
pin 33	pin B2
pin 33	pin X1

(g) Do these steps to check the wiring between relay K28122 and relay K76102:

- 1) Do a wiring check between these pins of the relay connector DK28122, on the E1–4 Shelf and the relay connector DK76102, on the LPMP P110:

DK28122	DK76102
pin Y2	pin C3
pin X2	pin C1

- 2) Make sure there is continuity between pin C2, on connector DK76102 and structure ground.

(h) Do these steps to check the indication wiring:

- 1) Lower the right overhead circuit breaker panel P11, to get access to the left overhead panel cardfile (LOPC) P61.
- 2) Disconnect the connector DM23117N, from the LOPC P61.
- 3) Do a wiring check between these pins of connector DM23117N, on the P61 and the relay connector DK28122, on the E1–4 Shelf:

DK28122	DM23117N
pin B1	pin B17
pin B1	pin B18

- 4) Do a wiring check between these pins of connector DM23117N, on the P61 and the actuator connector DV28164:

DV28164	DM23117N
pin 3	pin B15
pin 3	pin B16

(i) If there are wiring problems, do these steps:

- 1) Repair the wiring.
- 2) Install the Left Engine Fire Shutoff Switch S26101. To install it, do this task: Engine Fire Switch Installation, AMM TASK 26-21-03-400-801.
- 3) If the MAT shows LATCHED for the correlated status message, then you must erase it from the EICAS status display. To erase it, do this task: Erasing a Latched EICAS Message (AMM TASK 31-61-00-800-802).

(j) If there are no wiring problems, install a new Left Engine Fire Shutoff Switch S26101. To install it, do this task: Engine Fire Switch Installation, AMM TASK 26-21-03-400-801.

(k) Connect the connector DM23117N to the LOPC P61.

(l) Connect the electrical connector DV28164 to the actuator for the Left Engine Fuel Spar Valve V28164 (AMM TASK 28-22-02-000-802).

(m) Close the right overhead circuit breaker panel P11.

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- (n) Install the L ENG FUEL SPAR VLV RELAY K28122, in the E1–4 Shelf.
- (o) Install the L ENG FUEL SPAR/IGN RELAY K76102, in the LPMP P110.
- (p) Remove the safety tag and close this circuit breaker:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C28001	L ENGINE FUEL SPAR VALVE

- (q) Put the L ENG RUN/CUTOFF switch, on the Control Stand P10, to the RUN position.
- (r) Wait 15 seconds.
- (s) Put the L ENG RUN/CUTOFF switch, on the Control Stand P10, to the CUTOFF position.
- (t) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

— END OF TASK —

841. Fuel Spar Valve, Right Engine (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-14002.

B. General

- (1) If the R ENG FIRE switch is pulled and the R ENG RUN/CUTOFF switch is at RUN for more than 10 seconds, this fault will latch. Do this task to erase the latched STATUS message.

C. Initial Evaluation

- (1) To make sure the fault was not intermittent, do these steps:

- (a) Make sure that this circuit breaker is closed:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	19	C28002	R ENGINE FUEL SPAR VALVE

- (b) If the MAT shows LATCHED for the correlated status message, then you must erase it from the EICAS status display (AMM TASK 31-61-00-800-802).
- (c) Put the R ENG RUN/CUTOFF switch, on the Control Stand P10, to the RUN position.
 - 1) Monitor the fuel synoptic page or the fuel management page to make sure the spar valve moves to the open position.
- (d) Wait 15 seconds.
- (e) Put the R ENG RUN/CUTOFF switch, on the Control Stand P10, to the CUTOFF position.
 - 1) Monitor the fuel synoptic page or the fuel management page to make sure the spar valve moves to the closed position.
- (f) If the MAT shows ACTIVE for the maintenance message, then do the Fault Isolation procedure below.
- (g) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.
 - 1) If there was an intermittent fault, a fault in the valve actuator can be the cause.

NOTE: The replacement of the valve actuator is an optional step that can help decrease repeated intermittent faults.

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- a) To decrease repeated intermittent faults, it is recommended to replace the Valve Actuator:
 - <1> Do this task: Engine Fuel Spar Valve Actuator - Removal, AMM TASK 28-22-02-000-802.
 - <2> Do this task: Engine Fuel Spar Valve Actuator - Installation, AMM TASK 28-22-02-400-802.

D. Fault Isolation Procedure

- (1) Replace the Right Engine Fuel Spar Valve Actuator, V28264.

These are the tasks:

Engine Fuel Spar Valve Actuator - Removal, AMM TASK 28-22-02-000-802,

Engine Fuel Spar Valve Actuator - Installation, AMM TASK 28-22-02-400-802.

- (a) If the MAT shows LATCHED for the correlated status message, then you must erase it from the EICAS status display (AMM TASK 31-61-00-800-802).
 - (b) Put the R ENG RUN/CUTOFF switch, on the Control Stand P10, to the RUN position.
 - (c) Wait 15 seconds.
 - (d) Put the R ENG RUN/CUTOFF switch, on the Control Stand P10, to the CUTOFF position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the R ENG FUEL SPAR VLV CTRL Relay, K28222, installed in the P101 Panel (WDM 28-22-25).
 - (a) If the MAT shows LATCHED for the correlated status message, then you must erase it from the EICAS status display (AMM TASK 31-61-00-800-802).
 - (b) Put the R ENG RUN/CUTOFF switch, on the Control Stand P10, to the RUN position.
 - (c) Wait 15 seconds.
 - (d) Put the R ENG RUN/CUTOFF switch, on the Control Stand P10, to the CUTOFF position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the R ENG FUEL SPAR/IGN Relay, K76202, in the Right Power Management Panel (RPMP), P210 (WDM 28-22-25).
 - (a) If the MAT shows LATCHED for the correlated status message, then you must erase it from the EICAS status display (AMM TASK 31-61-00-800-802).
 - (b) Put the R ENG RUN/CUTOFF switch, on the Control Stand P10, to the RUN position.
 - (c) Wait 15 seconds.
 - (d) Put the R ENG RUN/CUTOFF switch, on the Control Stand P10, to the CUTOFF position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Do these steps to check the wiring (WDM 28-22-25):

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- (a) Open this circuit breaker and install safety tag:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	19	C28002	R ENGINE FUEL SPAR VALVE

- (b) Remove the Right Engine Fire Shutoff Switch, S26201, from the Aisle Stand, P8 (AMM TASK 26-21-03-000-801).
- (c) Remove the R ENG FUEL SPAR VLV RELAY, K28222, from the P101 Panel.
- (d) Remove the R ENG FUEL SPAR/IGN RELAY, K76202, from the RPMP, P210.
- (e) Disconnect the electrical connector DV28264 from the Actuator for the Right Engine Fuel Spar Valve, V28264 (AMM TASK 28-22-02-000-802).
- (f) Do these steps to check the actuator power and control wiring:
- 1) Remove the safety tag and close this circuit breaker:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	19	C28002	R ENGINE FUEL SPAR VALVE

- 2) Make sure there is 28V DC at pin 16, on connector DS26201.
- 3) Open this circuit breaker and install safety tag:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	19	C28002	R ENGINE FUEL SPAR VALVE

- 4) Make sure there is continuity between pin 4, on the actuator connector DV28264 and structure ground.
- 5) Do a wiring check between these pins on the Fire Shutoff Switch connector DS26201, on the P10 control stand, through the terminal block, and the Actuator connector DV28264:

DS26201	DV28264
pin 32	pin 6
pin 32	pin 5

- 6) Do a wiring check between these pins on the Relay connector DK28222, on the P101 Panel, through the terminal block, and the Actuator connector DV28264:

DK28222	DV28264
pin A1	pin 2
pin A3	pin 6
pin A3	pin 5

- 7) Do a wiring check between these pins of the Fire Shutoff Switch connector DS26201, on the P10 control stand and the Relay connector DK28222, on the P101 Panel:

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DS26201	DK28222
pin 33	pin Y1
pin 33	pin A2
pin 33	pin B2
pin 33	pin X1

- (g) Do these steps to check the wiring between Relay K28222 and Relay K76202:
- 1) Do a wiring check between these pins of the Relay connector DK28222, on the P101 Panel and the Relay connector DK76202, on the RPMP P210:

DK28222	DK76202
pin Y2	pin C3
pin X2	pin C1

- 2) Make sure there is continuity between pin C2 on connector DK76202 and structure ground.
- (h) Do these steps to check the indication wiring:
- 1) Lower the left overhead circuit breaker panel P11, to get access to the Right Overhead Panel Cardfile (ROPC), P61.
 - 2) Disconnect the connector DM23217N, from the ROPC, P61.
 - 3) Do a wiring check between these pins of connector DM23217N, on the P61 Panel, and the Relay connector DK28222, on the P101 Panel:

DK28222	DM23217N
pin B1	pin B17
pin B1	pin B18

- 4) Do a wiring check between these pins of connector DM23217N, on the P61 Panel, and the Actuator connector DV28264:

DV28264	DM23217N
pin 3	pin B15
pin 3	pin B16

- (i) If there are wiring problems, do these steps:
 - 1) Repair the wiring.
 - 2) Install the Right Engine Fire Shutoff Switch, S26101 (AMM TASK 26-21-03-400-801).
 - 3) If the MAT shows LATCHED for the correlated status message, then you must erase it from the EICAS status display (AMM TASK 31-61-00-800-802).
- (j) If there are no wiring problems, install a new Right Engine Fire Shutoff Switch, S26101 (AMM TASK 26-21-03-400-801).
- (k) Connect the connector DM23217N to the ROPC, P61.
- (l) Connect the electrical connector DV28264 to the Actuator for the Left Engine Fuel Spar Valve, V28264 (AMM TASK 28-22-02-000-802).
- (m) Close the left overhead circuit breaker panel, P11.
- (n) Install the R ENG FUEL SPAR VLV RELAY, K28222, in the P101 Panel.

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- (o) Install the R ENG FUEL SPAR/IGN RELAY, K76202, in the RPMP, P210.
- (p) Remove the safety tag and close this circuit breaker:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	19	C28002	R ENGINE FUEL SPAR VALVE

- (q) Put the R ENG RUN/CUTOFF switch, on the Control Stand P10, to the RUN position.
- (r) Wait 15 seconds.
- (s) Put the R ENG RUN/CUTOFF switch, on the Control Stand P10, to the CUTOFF position.
- (t) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

———— **END OF TASK** ————

842. Fuel Shutoff Valve Battery Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-14003.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do these steps:
 - (a) Do these steps to make sure 28 volt DC power is available at the M28004 (BFS24) Battery and Charger:
 - 1) Disconnect connector DM28004 at the front of the M28004 Battery and Charger.
 - 2) With a voltmeter, measure the voltage between the plug pins 5 and 6 on connector DM28004.
 - 3) If there is no voltage between plug pins 5 and 6, then
Make sure that this circuit breaker is closed:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	22	C28648	FUEL BATTERY CHARGE

- a) If the circuit breaker is closed, then do the wiring check in the Fault Isolation procedure below.
 - (b) Do these steps to make sure 28 volt DC hot battery power is available at the M28004 (BFS24) Battery and Charger:
 - 1) With a voltmeter, measure the voltage between the plug pins 11 and 7 on connector DM28004.
 - 2) If there is no voltage between plug pins 11 and 7, then
Make sure that this circuit breaker is closed:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	20	C28649	FUEL SHUTOFF VALVE BUS

- a) If the circuit breaker is closed, then do the wiring check in the Fault Isolation procedure below.

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- (c) Do these steps to make sure 28 volts DC battery power is available at the M28004 (BFS24) Battery and Charger:
- 1) With a voltmeter, measure voltage between receptacle pins 12 and 2 on M28004.
 - 2) If this voltage is less than 22 volts, then recharge the battery for one (1) hour.
NOTE: It can take 1 hour before the fuel shutoff valve battery message will go off.
 - 3) After one hour, do a check of the battery voltage again.
 - 4) If the voltage is still less than 22 volts, re-connect connector DM28004 at the front of the M28004 (BFS24) Battery and Charger. Do the Fault Isolation Procedure below.
NOTE: If 28 volt DC hot battery power is available but 28 volts DC battery power is unavailable at M28004, the most likely fault is with the blocking diode R28034.
- (2) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the engine fuel spar valve battery and charger, M28004.

These are the tasks:

Engine Fuel Spar Valve Battery - Removal, AMM TASK 28-22-14-000-801,

Engine Fuel Spar Valve Battery - Installation, AMM TASK 28-22-14-400-801.

- (a) Let the battery recharge for 1 hour.

NOTE: The fuel shutoff valve battery message will go off in less than 1 hour.

- (b) Open this circuit breaker and install safety tag:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	20	C28649	FUEL SHUTOFF VALVE BUS

- (c) Put the left engine cutoff switch, on the P10 control stand, to the RUN position.
- (d) Wait 15 seconds.
- (e) Put the left engine cutoff switch to the CUTOFF position.
- (f) Remove the safety tag and close this circuit breaker:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	20	C28649	FUEL SHUTOFF VALVE BUS

- (g) If the message shows, let the battery recharge for up to 1 hour.
NOTE: The message should go off in less than 1 hour.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (i) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do these steps to check the wiring (WDM 28-22-31):

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C28001	L ENGINE FUEL SPAR VALVE
A	17	C28003	APU FUEL S/O VALVE
A	19	C28002	R ENGINE FUEL SPAR VALVE
A	20	C28649	FUEL SHUTOFF VALVE BUS
C	22	C28648	FUEL BATTERY CHARGE
D	6	C23603	OPAS 1
G	20	C23602	OPAS 2

- (b) Remove the fuel shutoff valve battery, M28004, to get access to connector DM28004. To remove the battery, do this task: Engine Fuel Spar Valve Battery - Removal, AMM TASK 28-22-14-000-801.



CAUTION

DO NOT TOUCH THE OVERHEAD PANEL CARD FILE (OPCF) BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE OPCF.

- (c) Before you remove the electrical connector DM23117N from the M23117 Left Overhead Panel Card File (OPCF), do this task: ESDS Handling for Metal Encased Unit Removal, AMM TASK 20-41-01-000-803.
- (d) Open overhead circuit breaker panel P11, to get access to the M23117 left overhead panel cardfile (OPCF) in the overhead maintenance panel P61.
- 1) Loosen the captive screws in the overhead circuit breaker panel P11, forward of the left OPCF.
 - 2) Push the button between the captive screws to open the P11 panel.
- (e) Disconnect the connector DM23117N, from the M23117 left OPCF in the overhead maintenance panel P61 (WDM 23-93-12).
- (f) Do these steps to check the wiring:
- 1) Remove the safety tags and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	20	C28649	FUEL SHUTOFF VALVE BUS
C	22	C28648	FUEL BATTERY CHARGE

- 2) Make sure there is 28V DC at pin 5, on connector DM28004.
- 3) Make sure there is 28V DC at pins 11 and 12, on connector DM28004.
- 4) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	20	C28649	FUEL SHUTOFF VALVE BUS
C	22	C28648	FUEL BATTERY CHARGE

- 5) Make sure there is continuity between structure ground and pins 6, 7, and 8 on connector DM28004.

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- 6) Make sure there is no continuity between structure ground and pins 11 and 12, on connector DM28004.

- 7) Do these steps to check the blocking diode R28034 (WDM 28-22-31):

- a) Do a wiring check to make sure there is continuity between these pins on connector DM28004 if the current is applied to pin 11:

NOTE: Current should flow from pin 11, through the blocking diode, to pin 12.

DM28004	DM28004
pin 11	pin 12

- b) Do a wiring check to make sure there is no continuity between these pins on connector DM28004 if the current is applied to pin 12:

NOTE: Current should not flow from pin 12, through the blocking diode, to pin 11.

DM28004	DM28004
pin 12	pin 11

- 8) Do a wiring check to make sure there is continuity between these pins on connector DM28004:

DM28004	DM28004
pin 1	pin 2

- 9) Do a wiring check between these pins on connector DM28004 and the M23117 left OPCF connector DM23117N (WDM 28-22-31):

DM28004	DM23117N
pin 9	pin B19
pin 9	pin B20

- (g) If there are wiring problems, repair the wiring (WDM 28-22-31).

- (h) If there are no wiring problems, replace the M23117 left OPCF

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,

Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.



DO NOT TOUCH THE OVERHEAD PANEL CARD FILE (OPCF) BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE OPCF.

- 1) When you install the M23117 Left Overhead Panel Card File (OPCF), do this task: ESDS Handling for Metal Encased Unit Installation, AMM TASK 20-41-01-400-803.
 - 2) Connect the connector DM23117N to the M23117 Left OPCF.
 - 3) Close the overhead circuit breaker panel P11.
- (i) Install the engine fuel spar valve battery and charger, M28004. To install it, do this task: Engine Fuel Spar Valve Battery - Installation, AMM TASK 28-22-14-400-801.

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C28001	L ENGINE FUEL SPAR VALVE
A	17	C28003	APU FUEL S/O VALVE
A	19	C28002	R ENGINE FUEL SPAR VALVE
C	22	C28648	FUEL BATTERY CHARGE
D	6	C23603	OPAS 1
G	20	C23602	OPAS 2

- (k) Let the battery recharge for 1 hour.

NOTE: The fuel shutoff valve battery message will go off in 1 hour.

- (l) Make sure that this circuit breaker is open and has safety tag:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	20	C28649	FUEL SHUTOFF VALVE BUS

- (m) Put the left engine cutoff switch, on the P10 control stand, to the RUN position.

- (n) Wait 15 seconds.

- (o) Put the left engine cutoff switch to the CUTOFF position.

- (p) Remove the safety tag and close this circuit breaker:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	20	C28649	FUEL SHUTOFF VALVE BUS

- (q) If the message shows, let the battery recharge for up to 1 hour.

NOTE: The message should go off in less than 1 hour.

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

————— END OF TASK —————

843. FUEL PRESS ENG L and R - EICAS MESSAGES

A. Description

- (1) This task is for these EICAS messages:

- (a) FUEL PRESS ENG L
- (b) FUEL PRESS ENG R
- (c) FUEL PRESS ENG L & R

B. Possible Causes

- (1) Ice in the fuel system can cause fuel pump low pressure indication faults.

NOTE: Intermittent failures of the fuel pump pressure indication can occur because of environmental and fuel tank conditions. EICAS messages FUEL PRESS ENG L or FUEL PRESS ENG R can appear due to icing of fuel pump pressure switches. If this type of intermittent fault occurs, the applicable fuel pump will operate normally on the ground.

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- (2) Both fuel boost pumps for the left or right side may be inoperative.

C. Initial Evaluation

- (1) The EICAS message FUEL PRESS L will show when there is no fuel pressure in the left fuel feed manifold and the crossfeed valves are closed.
- (2) The EICAS message FUEL PRESS R will show when there is no fuel pressure in the right fuel feed manifold and the crossfeed valves are closed.
- (3) The EICAS message FUEL PRESS L & R will show when there is no fuel pressure in the left or right fuel feed manifold and the crossfeed valves are open or closed.
- (4) If the applicable EICAS message continues to show when a main or center tank pump is set to ON, make sure there is fuel in the applicable fuel tank.
 - (a) If the applicable EICAS message continues to show, look for these maintenance messages:
 - 1) Left Center Fuel Pump: 23-43410, 28-11042
 - 2) Left Aft Boost Pump: 23-43380, 28-11036
 - 3) Left Forward Boost Pump: 23-43350, 28-13114
 - 4) Right Center Fuel Pump: 23-43770, 28-12027
 - 5) Right Aft Boost Pump: 23-43740, 28-12022
 - 6) Right Forward Boost Pump: 23-43800, 28-11050
 - (b) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure.

END OF TASK

844. FUEL LOW CENTER - Problems

A. Initial Evaluation

- (1) This task is for this EICAS message:
 - (a) FUEL LOW CENTER
- (2) Do these steps:
 - (a) The EICAS message FUEL LOW CENTER (ADVISORY) will let the pilots know when to set the center tank fuel pumps to the off position. If the pilots do not react to the FUEL LOW CENTER message, the ELMS system will de-energize each center tank fuel pump after 15 seconds of continuous low pressure indication (as indicated by the pump pressure switch). Auto shutoff is disabled during defueling or during jettison.
 - (b) The center wing tank fuel quantity that is necessary to set the FUEL LOW CENTER message depends on the phase of flight and the center tank size. The logic to set this message is as follows:
 - 1) On the ground - engines off and the center tank fuel quantity is less than the fuel quantity necessary to reach 10,000 feet AGL (above ground level):
 - a) Fuel to reach 10,000 feet AGL - 10,000 lb (4536 kg)
 - 2) During climb - (more than 5 degrees of pitch) and the center tank fuel quantity is less than the wet shutoff quantity at high pitch
 - a) Wet shutoff quantity at high pitch (> 5 °) - 4000 lb (1814 kg)
 - 3) During cruise - (pitch attitude equal to 5 degrees) and the center tank fuel quantity is less than the wet shutoff quantity:

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- a) Wet shutoff quantity - 2700 lb (1225 kg)
- (c) No maintenance action is necessary.

———— **END OF TASK** ————

845. FUEL IN CENTER - EICAS MESSAGE

A. Initial Evaluation

- (1) This task is for this EICAS Message:
 - (a) FUEL IN CENTER
- (2) Do these steps:
 - (a) The EICAS message FUEL IN CENTER (ADVISORY) will let the pilots (or ground crew) know when to set the center tank fuel pumps to the ON position. During takeoff and initial climb, the pumps are selected off if the center tank fuel quantity is less than the fuel quantity necessary to reach 10,000 feet AGL (above ground level) value.
 - (b) In the air - once the airplane is in a stabilized cruise condition, the EICAS message FUEL IN CENTER will show if the center tank fuel quantity is more than the fuel in the center tank value. When the EICAS message FUEL IN CENTER shows, the pilot sets the center tank pump switches to ON. The fuel quantity values for the fuel-to-reach-10,000-feet-AGL and fuel-in-the-center-tank depend on the center tank size:
 - 1) Fuel to reach 10,000 feet AGL - 10,500 lb (4763 kg)
 - 2) Fuel quantity in center tank - 3000 lb (1361 kg)
 - (c) In the air - the EICAS message FUEL IN CENTER will also show if the center pumps have been off for 10 minutes at cruise (<5 ° for 10 minutes) and the center tank fuel quantity is more than:
 - 1) 3000 lbs (1400 kg).

NOTE: This condition lets the flight crew know there is useable fuel in the center fuel tank.
 - (d) On the ground - the EICAS message FUEL IN CENTER (ADVISORY) will show if the center pumps are off and the the center fuel tank quantity is more than:
 - 1) 10,500 lbs (4800 kg).

NOTE: This condition lets the ground crew know there is useable fuel in the center fuel tank.
 - (e) No maintenance action is necessary.

———— **END OF TASK** ————

846. FUEL QTY LOW - EICAS Message

A. Initial Evaluation

- (1) This task is for this EICAS message:
 - (a) FUEL QTY LOW
- (2) The EICAS message FUEL QTY LOW will show when there is less than 4500 LB (2000 KG) of fuel the left or right main fuel tank.

NOTE: The EICAS message will go off when the fuel quantity in each main fuel tank is increased to 4700 LB (2200 KG)

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- (a) No maintenance action is necessary.

————— **END OF TASK** —————

847. **FUEL IMBALANCE - EICAS Message**

A. Initial Evaluation

- (1) This task is for this EICAS message:
 - (a) FUEL IMBALANCE
- (2) The EICAS message FUEL IMBALANCE will show when the FQIS system indicates that there is a fuel quantity difference between the left and right main fuel tanks.
 - (a) If the fuel quantity difference between the main tanks is more than the maximum allowable fuel imbalance, then the EICAS message FUEL IMBALANCE is set. The maximum allowable fuel imbalance depends on the total main tank fuel as shown in (Figure 302).
 - (b) If the EICAS message FUEL IMBALANCE does not continue to show, do this task: Fluctuating Fuel Quantity Indication - Fault Isolation, 28-22 TASK 853.

NOTE: The EICAS message FUEL IMBALANCE will go off if: the crew corrected a true imbalance during flight, the indicated fuel quantity was fluctuating, or a true imbalance occurred during flight and subsequently the fuel quantity difference between the main tanks became 200 LB (90 KG) less than the maximum allowable fuel imbalance shown in (Figure 302).
 - (c) If the MAT shows ACTIVE for the EICAS message FUEL IMBALANCE, then do the Fault Isolation Procedure below.

B. Fault Isolation Procedure

- (1) Do a check for problems with the FQPU, TANK UNITS, or DENSITOMETERS. Do these steps:
 - (a) Do this task: Fuel Quantity Processor Unit (FQPU) - Operational Check, AMM TASK 28-41-00-710-802.
 - (b) Do this task: Fuel Quantity Indicating System (FQIS) TANK UNITS and DENSITOMETERS - Operational Check, AMM TASK 28-41-00-710-801.
- (2) Do the steps that follow to check for problems with the center fuel tank override/jettison pump:
 - (a) Make sure there is a minimum of 10,000 lb (4536 kg) in the center fuel tank.

NOTE: This fuel quantity is necessary to prevent the dry operation of the fuel pump.

 - 1) To refuel the fuel tank (if it is necessary), do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
 - (b) Make sure there is a minimum of 6000 lb (2722 kg) in the affected side's main fuel tank.

NOTE: This fuel quantity is necessary to prevent the dry operation of the fuel pump.

 - 1) To refuel the fuel tank (if it is necessary), do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
 - (c) Put the DEFUEL VALVE switch, on the integrated refuel panel (IRP) P28, to the OPEN position.
 - (d) Do the steps that follow to manually open the applicable sides center tank refuel valve:
 - 1) Make sure the downlock pins are installed on the nose and main landing gear (Landing Gear Downlock Pins Installation, AMM TASK 32-00-30-480-801

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MAKE CERTAIN MAIN LANDING GEAR DOOR SAFETY LOCKS ARE INSTALLED WHEN PERSONS WORK IN WHEELWELL AREAS. DOOR MOVEMENT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- 2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801
- 3) Go to the applicable center tank refuel valve control unit located on the rear spar.



DO NOT REMOVE THE RETAINER PLATE LOCKWIRE, SCREWS, OR THE RETAINER PLATE. FUEL LEAKAGE CAN OCCUR.

- 4) Remove the lockwire from the override screw (knurled knob) only.
- 5) Turn the override screw (knurled knob) 10 to 13 turns in the counterclockwise direction.

NOTE: It can be necessary to use pliers to initially loosen the override screw.

- (e) If necessary, put the crossfeed valve switches on the P5 overhead panel to the OPEN position.

NOTE: The crossfeed valves must be opened to test the left override/jettison pump.

- (f) Push the affected side's CENTER PUMP switch-light on the Fuel Management Control Panel M28001, on the P5 Overhead Panel to the ON position.
- (g) Push the affected side's AFT/FWD PUMP switch-lights on the Fuel Management Control Panel M28001, on the P5 Overhead Panel, to the ON position.
- (h) Monitor the fuel quantity in the center fuel tank.
 - 1) Wait for 5 minutes.
 - 2) Turn off the affected side's CENTER PUMP switch-light on the Fuel Management Control Panel M28001, on the P5 Overhead Panel.
 - 3) Turn off the affected side's AFT/FWD PUMP switch-lights on the Fuel Management Control Panel M28001, on the P5 Overhead Panel.
- (i) Do the following steps to manually close the applicable center tank refuel valve:



DO NOT USE TOOLS TO TIGHTEN. DAMAGE TO THE EQUIPMENT CAN OCCUR.

- 1) Turn the override screw (knurled knob) on the refuel valve control unit 10 to 13 turns in the clockwise direction until the override screw stops.
 - 2) Install lockwire to the override screw (knurled knob) (AMM TASK 20-10-23-400-801).
 - 3) If no longer necessary, do this task: Landing Gear Door Safety Pins Removal, AMM TASK 32-00-15-080-801.
- (j) If the fuel level in the center fuel tank increased (and the level in the affected side's main tank decreased by almost the same quantity), then you must replace the affected side's override/jettison pump.

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These are the tasks:

Override/Jettison Pump Motor-Impeller - Removal, AMM TASK 28-22-06-000-801,

Override/Jettison Pump Motor-Impeller - Installation, AMM TASK 28-22-06-400-801.

- (k) Put the DEFUEL VALVE switch, on the integrated refuel panel (IRP) P28, to the CLOSED position.

- (3) To balance the fuel, do this task: Tank to Tank Transfer, AMM TASK 28-26-00-650-802.

NOTE: The EICAS message FUEL IMBALANCE will go off when the difference in fuel quantity between the left and right main tanks is 200 LB (90 KG) less than the minimum fuel quantity difference shown above.

- (4) If you find no problems with the FQPU, TANK UNITS, DENSITOMETERS, or OVERRIDE/JETTISON PUMPS, do this task: Fuel transfer when not commanded - Fault Isolation, 28-22 TASK 849.

- (5) If you do not find any problems, the EICAS message FUEL IMBALANCE may be the result of one engine having a higher fuel burn rate than the other engine.

NOTE: If all other fault isolation has been done and the fault was caused by unequal engine fuel burn, no more work is necessary. If the fault occurs on subsequent flights, do all fault isolation steps again.

————— END OF TASK —————

848. FUEL FEED SYNOPTIC Display - Fault Isolation

A. Description

- (1) This procedure is for the observed condition where the Fuel Pump or Fuel Valve Indication on the Fuel Synoptic shows as invalid (de-emphasized white).
- (2) This condition occurs when the position for the applicable switch or commanded input is invalid.
- (3) Similar data will also show on the EICAS Maintenance page for Fuel Management.

B. Initial Evaluation

ARO 003 POST SB 777-31-0227 AND PRE SB 777-31-0263 AND PRE SB 777-31-0264 AND PRE SB 777-31-0218

- (1) On airplanes with Airplane Information Management System (AIMS) Blockpoint Versions 17 and 17.1 (BP V17/BP V17.1) Software, an electrical power interrupt of the Left Main AC Bus in flight or an OPAS-L CMCF initiated Ground Test can cause the Fuel Spar Valve Indication on the EICAS Fuel Synoptic to latch as invalid (shown as a white circle) and the green flow bars to be replaced with white background lines.

NOTE: This condition will be corrected in the next available AIMS Blockpoint revision beyond BP V17.1.

- (a) If this condition is suspected, cycle the applicable engine FUEL CONTROL Switch from CUTOFF to RUN, then back to CUTOFF.
- (b) Open and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3

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ARO 003 POST SB 777-31-0227 AND PRE SB 777-31-0263 AND PRE SB 777-31-0264 AND PRE SB 777-31-0218
(Continued)

(Continued)

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
B	15	C31619	AIMS L-4
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

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- (2) If this condition remains, do the Fault Isolation Procedure below.
- (3) If this condition no longer exists, there was an intermittent problem.

C. Fault Isolation Procedure

- (1) The fuel synoptic display can show the conditions shown in (Table 201) and (Table 202) for the fuel system valves and pumps.

Table 201/28-22-00-993-801

Valve Condition	Synoptic Display Color
OPEN	WHITE
CLOSED	GREEN
FAILED OPEN	AMBER
FAILED CLOSED	AMBER
INVALID	DE-EMPHASIZED WHITE

Table 202/28-22-00-993-802

Pump Condition	Synoptic Display Color
ON	GREEN
OFF	WHITE
FAILED	AMBER
INVALID	DE-EMPHASIZED WHITE

- (2) For the FAILED conditions above, refer to 28-FAULT CODE INDEX or the 28-MAINT MSG INDEX to find the related EICAS and Maintenance Messages in the Fault Isolation Manual (FIM).
- (3) For the INVALID conditions above, the synoptic will show de-emphasized white on the Synoptic Display for the applicable Fuel Pump or valve.

NOTE: The invalid condition "INV", for the APU Fuel Shutoff Valve, only shows on the EICAS Maintenance page for Fuel Management.

- (a) This condition can show without an EICAS indication.
- (b) If the invalid condition shows refer to (Table 203) for the correlated maintenance messages.

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Table 203/28-22-00-993-804

Pump/Valve Invalid Condition	Correlated Maintenance Messages
APU FUEL SHUTOFF VALVE	23-41060
	23-42060
	23-43060
AFT CROSSFEED VALVE	23-41010
	23-42010
	23-43010
FWD CROSSFEED VALVE	23-41300
	23-42300
	23-43300
L AFT PUMP	23-41380
	23-42380
	23-43380
L FWD PUMP	23-41350
	23-42350
	23-43350
L CTR PUMP	23-41410
	23-42410
	23-43410
L JETT ISOLATION VLV	23-43260
	23-42260
	23-43260
L JETT PUMP	23-41260
	23-42260
	23-43260
L JETT NOZZLE VALVE	23-43440
	23-43440
	23-43440
L FUEL SPAR VALVE	23-41540
	23-42540
	23-43540
R AFT PUMP	23-41740
	23-42740
	23-43740
	23-41800

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Table 203/28-22-00-993-804 (Continued)

R FWD PUMP	23-42800
	23-43800
R CTR PUMP	23-41770
	23-42770
	23-43770
R JETT ISOLATION VLV	23-41260
	23-42260
	23-43260
R JETT PUMP	23-41260
	23-42260
	23-43260
R JETT NOZZLE VALVE	23-41790
	23-42790
	23-43790
R FUEL SPAR VALVE	23-41890
	23-42890
	23-43890

- (c) Go to 28-MAINT MSG INDEX to find the applicable tasks for the maintenance messages that show.
- (d) Do the recommended Fault Isolation Procedures to correct the problems.

— END OF TASK —

849. Fuel transfer when not commanded - Fault Isolation

A. General

- (1) This procedure is for the observed condition of fuel transfer between fuel tanks when not commanded. Fuel can transfer between fuel tanks when there is leakage through failed seals. The seals that can fail include tubing O-rings, bulkhead fittings, and structure seals. A fuel tube can also fail and let fuel transfer into another fuel tank.

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

- (2) Debris in the outlet float valve keeps the valve open and causes premature scavenge of fuel from the center tank to one of the main tanks. Debris in the scavenge jet pump check valve causes the valve to remain open and lets fuel transfer from a main tank to the center tank. A single clogged scavenge system jet pump will prevent proper scavenging from the center tank into the associated wing tank-imbalance will occur when both the inlet and outlet float valves are open. Wear to the boost pump discharge check valve seal lets fuel leak past the main boost pump into the main tank when the center override/jettison pumps are operated. A suction feed bypass check valve leak can result in transfer to the main tanks when the override/jettison pumps are supplying fuel pressure to the engines from the center tank. A fuel feed manifold leak can result in transfer to a main tank when the override/jettison pumps are supplying fuel pressure to the engines from the center tank.

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ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- (3) The fuel scavenge system will transfer fuel from the center tank into the main tanks when the jettison pumps operate. A single clogged scavenge system jet pump will prevent proper scavenging from the center tank into the associated wing tank-imbalance will occur once the jettison pumps operate. Wear to the boost pump discharge check valve seal lets fuel leak past the main boost pump into the main tank when the center override/jettison pumps are operated. A suction feed bypass check valve leak can result in transfer to the main tanks when the override/jettison pumps are supplying fuel pressure to the engines from the center tank. A fuel feed manifold leak can result in transfer to a main tank when the override/jettison pumps are supplying fuel pressure to the engines from the center tank. Failed open jettison isolation valve can result in one main tank's boost pumps overriding the opposite tanks boost pumps, feeding the opposite engine through the open jettison isolation valve.

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B. Initial Evaluation

- (1) Make sure the fuel quantity shows for each fuel tank, on the EICAS display.

NOTE: For the EICAS message FUEL IMBALANCE, see task 847.

- (a) To make sure there is fuel transfer, do these steps:

- 1) Do a check for fuel quantity indicating system (FQIS) maintenance messages, on the maintenance access terminal (MAT).
- 2) If there are FQIS related messages, do these steps:
 - a) Use the fuel measuring sticks to measure the fuel quantities in the applicable fuel tanks. To measure the fuel quantity, do this task: Find the Fuel Quantity (Fuel Measuring Stick Manual (FMSM)).
 - b) If the fuel quantity on the EICAS display is not the same as the fuel quantity shown by the fuel measuring sticks, do the applicable fault isolation procedure for the messages that show.
 - c) If the fuel quantity on the EICAS display is the same as the fuel quantity shown by the fuel measuring sticks, then do the fault isolation procedure below.

- 3) If there are no FQIS maintenance messages, do the fault isolation procedure below.

- (2) For fuel transfer between the center fuel tank and main fuel tank, do these steps:

- (a) Make sure the fuel tanks have the fuel quantities as follows:

- 1) Make sure there is 5000 lb (2268 kg) of fuel (or more) in each main fuel tank.
- 2) Make sure there is 5000 lb (2268 kg) of fuel (or more) in the center fuel tank.
- 3) To refuel the fuel tanks (if it is necessary), do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.

- (b) Make sure the left and right fuel control levers, on the P10 pilots control stand, are in the CUTOFF position.

NOTE: This step makes sure the fuel spar valves are closed.

- (c) Make sure all the fuel pump switches, on the P5 overhead panel, are in the off position.
- (d) Put the defuel valve switch, on the integrated refuel panel (IRP) P28, to the CLOSED position.
- (e) Put the FWD and AFT fuel crossfeed valve switches, on the P5 overhead panel, to the CLOSED position.



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- (f) Push the left and right override/jettison pump switches to the ON position.
- (g) If the fuel quantity in a main fuel tank increases, there could be a problem with the following:
 - 1) A boost pump discharge check valve may be broken or the seal for the check valve may have leakage. Do these steps to isolate the check valve with the problem:



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
 - c) Turn on the forward boost pump in the applicable tank.
 - d) If the rate of fuel transfer decreases, then the check valve on the forward boost pump may have the problem.
 - e) Turn on the aft boost pump in the applicable tank.
 - f) If the rate of fuel transfer decreases, then the check valve on the aft boost pump may have the problem.
- 2) If the boost pump discharge check valve is broken or if the seal for the check valve has leakage, do these steps:
 - a) Replace the discharge check valve - out of tank.
These are the tasks:
Discharge Check Valve (Out Of Fuel Tank) - Removal, AMM TASK 28-22-08-000-801,
Discharge Check Valve (Out Of Fuel Tank) - Installation, AMM TASK 28-22-08-400-801.
 - 3) The suction feed bypass valve may be broken.
These are the tasks:
Suction Bypass Valve - Removal, AMM TASK 28-22-10-020-801,
Suction Bypass Valve - Installation, AMM TASK 28-22-10-420-801.
 - 4) The tubing and/or coupling may be broken or leaking. To do a check, do this task:
Engine Fuel Feed Manifold - Suction Feed Line Leak Check, AMM TASK 28-22-15-710-802-001.
 - 5) The crossfeed/defuel/engine shutoff valve may be leaking. To do a check, do this task: Engine Fuel Feed Manifold, Spar and Crossfeed Valve - Leak Check, AMM TASK 28-22-15-790-802-001.
- (h) If the fuel quantity does not increase, continue.
 - (i) Do a check for leaks in the engine fuel feed and refuel/jettison manifolds. To do a check, do this task: Refuel/Jettison and Fuel Feed Manifold - Leak Test, AMM TASK 28-21-00-790-802.

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- 1) If there is a leak in the system, repair the leak (AMM TASK 28-22-15-790-802-001).
NOTE: If the defuel valve is in the open position, air pressure can be used to help isolate a leak in the refuel/jettison manifold.
 - 2) If the system is OK, then continue.
- (j) Do a test of the center tank fuel scavenge system. To test the fuel scavenge system, do this task: Fuel Scavenge System - Functional Test, AMM TASK 28-22-00-720-802 or Fuel Scavenge System - Functional Test, AMM TASK 28-22-00-720-805.

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

Table 204/28-22-00-993-805 Scavenge System Value Open/Close Fuel Level

Component	Fuel Quantity - In Flight (Normal)	Fuel Quantity - Ground (Normal)	Operational Notes
A. Scavenge Discharge (Outlet) Float Valve (either main tank)	777-200 LR/-300 ER/F Valve is fully closed at this main tank fuel quantity: 53,600 lb (24,313 kg).	777-200 LR/-300 ER/F Valve is fully closed at this main tank fuel quantity: 56,350 lb (25,560 kg).	Scavenge transfer should not occur above this quantity.
	777-200 LR/-300 ER/F Valve is open below this main tank quantity: 51,700 lb (23,451 kg).	777-200 LR/-300 ER/F Valve is open below the following center tank quantity: 53,900 lb (24,449 kg).	Below this quantity, fuel should scavenge from the center tank to the main tanks at a rate of 1050 $\pm$ 650 lb (476 $\pm$ 295 kg) per hour (per tank).
B. Motive Flow Shutoff (Inlet) Float Valve	777-200 LR/-300 ER/F Valve is open below the following center tank quantity: 37,050 lb (16,806 kg).	777-200 LR/-300 ER/F Valve is open below the following center tank quantity: 48,100 lb (21,818 kg).	Motive flow fuel is provided to scavenge jet pumps from main tank boost pumps below this quantity. However, scavenging will not occur until outlet float valve(s) open.
C. Center Tank Override/ Jettison Pump	777-200 LR/-300 ER/F Pump inlets will be uncovered below the following center tank quantity: 550 lb (249 kg).	777-200 LR/-300 ER/F Pump inlets will be uncovered below the following center tank quantity: 1600 lb (726 kg).	Below this quantity both center tank pumps should be indicating low pressure consistently. One or both center pumps may indicate intermittent low pressure above this quantity.

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- 1) If the fuel scavenge system does not pass the functional test, the associated scavenge inlet screen or jet pump may be clogged. Clean the clogged inlet screen or replace the clogged jet pump.
 - a) To clean the inlet screen, remove the inlet screen from the tank and use shop air to blow debris off of the screen.
 - b) To replace the jet pump,

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These are the tasks:

Fuel Scavenge Jet Pump - Removal, AMM TASK 28-22-12-000-801,

Fuel Scavenge Jet Pump - Installation, AMM TASK 28-22-12-400-801.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- c) If necessary, replace the swing check valve on the fuel scavenge inlet line.

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

- 2) If there is a leak into the main fuel tank, do these steps to inspect the applicable float valve:
 - a) To remove the outlet float shutoff valve from the tank, do this task: Outlet Float-Operated Shutoff Valve - Removal, AMM TASK 28-22-11-000-803.
 - b) To remove the inlet float shutoff valve from the tank, do this task: Inlet Float-Operated Shutoff Valve - Removal, AMM TASK 28-22-11-000-801.
 - c) Make sure that the float assembly and the poppet assembly on the applicable float valve can move freely.
 - d) With the float assembly in the down position, look inside of the poppet assembly and body for debris.
- 3) If you see debris in the poppet assembly or the body of the removed float valve, do these steps to make sure the fuel scavenge system operates correctly:
 - a) Install a new outlet float shutoff valve. To install it, do this task: Outlet Float-Operated Shutoff Valve - Installation, AMM TASK 28-22-11-400-803.
 - b) Install a new inlet float shutoff valve. To install it, do this task: Inlet Float-Operated Shutoff Valve - Installation, AMM TASK 28-22-11-400-801.
 - c) Do a check of the other scavenge system valves for equivalent debris.
 - d) Do this task: Examine and Close the Fuel Tank, AMM TASK 28-11-00-160-801.
- 4) If you do not see debris in the poppet assembly or the body of the removed float valve, install the float valve.
 - a) Install the outlet float shutoff valve. To install it, do this task: Outlet Float-Operated Shutoff Valve - Installation, AMM TASK 28-22-11-400-803.
 - b) Install the inlet float shutoff valve. To install it, do this task: Inlet Float-Operated Shutoff Valve - Installation, AMM TASK 28-22-11-400-801.

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- 5) Do one more test of the center tank fuel scavenge system to see if you corrected the fault. To test the fuel scavenge system, do this task: Fuel Scavenge System - Functional Test, AMM TASK 28-22-00-720-802 or Fuel Scavenge System - Functional Test, AMM TASK 28-22-00-720-805.
 - a) If the problem continues, repair the leaking tubing.

These are the tasks:

Fuel Line, Fitting and Coupling - Removal, AMM TASK 28-22-15-000-802-001,

Fuel Line, Fitting and Coupling - Installation, AMM TASK 28-22-15-400-802-001.

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- 6) If there is a leak into the center fuel tank, the check ball in the scavenge jet pump assembly can be bad (See Figure 301). Clean the check ball or replace the scavenge jet pump assembly.

These are the tasks:

Fuel Scavenge Jet Pump - Removal, AMM TASK 28-22-12-000-801,

Fuel Scavenge Jet Pump - Installation, AMM TASK 28-22-12-400-801.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- a) Replace the swing check valve on the fuel scavenge inlet line.

NOTE: The swing check valve is in series with the check ball in the scavenge jet pump assembly.

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- b) Visually examine the center tank scavenge jet pump outlet line and motive flow line to make sure they are tightly and correctly attached.

- c) If the problem continues, repair the leaking tubing.

These are the tasks:

Fuel Line, Fitting and Coupling - Removal, AMM TASK 28-22-15-000-802-001,

Fuel Line, Fitting and Coupling - Installation, AMM
TASK 28-22-15-400-802-001.

- 7) If the fuel scavenge system is OK, then continue.

- (k) Do these steps to do a test for tank-to-tank leakage on the ground:

- 1) Defuel the center tank to a fuel quantity of zero (AMM TASK 28-26-00-650-801).
- 2) Put fuel into the left and right main tanks until they each contain a minimum of 48,400 lb (21,954 kg) (AMM TASK 12-11-01-650-806).
- 3) Let the airplane stand for a minimum of 8 hours.
- 4) Do a check of the fuel quantity in the center tank.
- 5) If no fuel is found in the center tank, then there was an intermittent fault.
- 6) If fuel is found in the center tank, then continue.

- (l) Defuel the fuel tanks. To defuel the fuel tanks, do this task: Pressure Defueling, AMM TASK 28-26-00-650-801.



WARNING

OBEY THE PURGING AND FUEL TANK ENTRY PRECAUTIONS. IF YOU DO NOT OBEY THE PURGING AND FUEL TANK ENTRY PRECAUTIONS, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (m) Do this task: Purging and Fuel Tank Entry Precautions, AMM TASK 28-11-00-650-801.

- (n) For the left main/center tank interface (Rib No. 8), do these steps:

- 1) To get access to the inboard side of Rib No. 8.

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
531CB	Access Door

- 2) To get access to the outboard side of Rib No. 8.

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Open this access panel:

<u>Number</u>	<u>Name/Location</u>
533AB	Access Door

- (o) For the right main/center tank interface (Rib No. 8), do these steps:

- 1) To get access to the inboard side of Rib No. 8.

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
631CB	Access Door

- 2) To get access to the outboard side of Rib No. 8.

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
633AB	Access Door

- (p) Have one person go into each tank to inspect Rib No. 8.

- (q) Use an air source to apply pressure to possible structure seal leak points, from one side of Rib No. 8, and have another person look for leaks on the opposite side of the rib.

NOTE: A water and soap solution can be used to help isolate a leak. Make sure you clean up the solution before you go out of the fuel tank.

- 1) Repair the leaks that you find (AMM TASK 28-11-00-300-802).

- (r) Use an air source to apply pressure to possible bulkhead fitting leak points, from one side of Rib No. 8, and have another person look for leaks on the opposite side of the rib.

NOTE: A water and soap solution can be used to help isolate a leak. Make sure you clean up the solution before you go out of the fuel tank.

- (s) Also inspect the tubing that goes thru Rib No. 8 for loose connections or damage.

- 1) Repair the leaks that you find

These are the tasks:

Fuel Line, Fitting and Coupling - Removal, AMM TASK 28-22-15-000-802-001,

Fuel Line, Fitting and Coupling - Installation, AMM TASK 28-22-15-400-802-001.

- (3) For fuel transfer between the left main fuel tank and the right main fuel tank, do these steps:

- (a) Do a check for leaks in the engine fuel feed and refuel/jettison manifolds. To do a check, do this task: Refuel/Jettison and Fuel Feed Manifold - Leak Test, AMM TASK 28-21-00-790-802.

- 1) If there is a leak in the system, repair the leak (AMM TASK 28-22-15-790-802-001).

NOTE: If the defuel valve is in the open position, air pressure can be used to help isolate a leak in the refuel/jettison manifold.

- 2) If there is no leak in the manifold system, the system is OK.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- (4) For fuel feed imbalance to the left or to the right engine, do these steps:

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ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083 (Continued)

- (a) Do a test of the fuel jettison isolation valves, do this task: Fuel Jettison System - Operational Test, AMM TASK 28-31-00-720-801.

NOTE: A failed open jettison isolation valve can cause one main tank's boost pump to override the opposite tank's boost pump. This can result in the fuel feed imbalance to the opposite left or the right engine.

- 1) If one of the jettison isolation valve fails to open or is bad, replace it.

These are the tasks:

Fuel Jettison Isolation Valve - Removal, AMM TASK 28-31-04-000-801,

Fuel Jettison Isolation Valve - Installation, AMM TASK 28-31-04-400-801.

- 2) If there is no unwanted fuel feed on the opposite left or the right engine, the system is OK.

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————— END OF TASK —————

852. Fuel Pump PRESS Light in CENTER PUMPS L or R Switch Comes On With Airplane on the Ground

A. Initial Evaluation

- (1) If the airplane is on the ground with a single power source and both override/jettison pumps are commanded on, one of the override/jettison pumps will be inhibited. The corresponding PRESS light for the pump on the non-powered side will illuminate and the pump PRESS EICAS message is inhibited. This is a normal condition and no action is required. This condition will go away after engine start.
- (2) If there are EICAS or maintenance messages associated with the override/jettison pump or PRESS light do the applicable fault isolation procedures.

————— END OF TASK —————

853. Fluctuating Fuel Quantity Indication - Fault Isolation

A. General

- (1) This procedure is for the observed condition of fluctuating fuel quantity indication.
- (2) Fluctuating fuel quantity indication is associated with incorrectly low fuel height measurements from a few probes. The EICAS message FUEL IMBALANCE will occur when fuel height measurements from probe(s) in one main fuel tank are sufficiently lower than fuel height measurements from the same probe(s) in the other main fuel tank.
- (a) Indicated main tank fuel quantity is most sensitive to fuel height measurements at tank units 8, 9, and 10.
- (b) During fluctuating fuel quantity indication, the Fuel Quantity Maintenance Page will show large differences (more than six inches) between heights measured by specific tank units in one main tank compared to the same tank units in the other main tank.
- (3) Fluctuating fuel quantity indication primarily occurs in main fuel tanks, but may occur in the center tank. Fluctuating fuel quantity indication can be a single occurrence which corrects itself within several minutes, or multiple events throughout the flight.
- (4) Indicated fuel quantity is most likely to fluctuate when the airplane is in cruise flight.

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- (5) During most reported incidents of fluctuating fuel quantity indication, the total fuel quantity was more than 80,000 lb (36,287 kg).
- (6) If the fuel quantity fluctuates during or right after refuel, do the steps that follow:

- (a) If there ADIRU was available, do the steps that follow:

- 1) Close these access doors or move to a position where power is removed from the IRP:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
621DB	Refueling Station Door

- 2) Wait two minutes.
- 3) If the fuel quantity indication does not fluctuate, no more work is necessary.
NOTE: There was a unfaulted tank unit anomaly.
- 4) If fuel quantity indications fluctuate, continue with the fault isolation.

- (b) If the ADIRU was not available, do the steps that follow:

- 1) Wait four minutes after the ADIRU is aligned.
- 2) If the fuel quantity indication does not fluctuate, no more work is necessary.
- 3) If fuel quantity indications fluctuate, continue with the fault isolation.

- (7) A tank unit can read low erroneously without generating maintenance messages.

NOTE: The unreported tank unit fault can occur in the main and center tanks.

- (a) AIRPLANES WITH ENGLISH UNITS:

Do the steps that follow to find if there is an unreported fault:

- 1) Refuel the applicable tank (AMM TASK 12-11-01-650-801 or AMM TASK 28-26-00-650-802).
- 2) Monitor the fuel quantity maintenance page for fuel tank unit readings of "0" or "0.8".
- 3) If any tank unit has a reading of "0" or "0.8", do these steps:
- a) Defuel the applicable tank (AMM TASK 28-26-00-650-801 or AMM TASK 28-26-00-650-802).
- b) Do these tasks to replace the tank unit:
- <1> Tank Unit - Removal, AMM TASK 28-41-02-000-801,
- <2> Tank Unit - Installation, AMM TASK 28-41-02-400-801.
- 4) If the fuel quantity indication does not fluctuate, no more work is necessary.
- 5) If fuel quantity indications fluctuate, continue with the fault isolation.

- (b) AIRPLANES WITH METRIC UNITS:

Do the steps that follow to find if there is an unreported fault:

- 1) Refuel the applicable tank (AMM TASK 12-11-01-650-801 or AMM TASK 28-26-00-650-802).
- 2) Monitor the fuel quantity maintenance page for fuel tank unit readings of "0" or "2".
- 3) If any tank unit has a reading of "0" or "2", do these steps:
- a) Defuel the applicable tank (AMM TASK 28-26-00-650-801 or AMM TASK 28-26-00-650-802).
- b) Do these tasks to replace the tank unit:

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- <1> Tank Unit - Removal, AMM TASK 28-41-02-000-801,
- <2> Tank Unit - Installation, AMM TASK 28-41-02-400-801.
- 4) If the fuel quantity indication does not fluctuate, no more work is necessary.
- 5) If fuel quantity indications fluctuate, continue with the fault isolation.

B. Fault Isolation Procedure

- (1) If you have fluctuating fuel quantity indication and the MAT shows ACTIVE for the EICAS message FUEL IMBALANCE, do this task: FUEL IMBALANCE - EICAS Message, 28-22 TASK 847.
- (2) If you have fluctuating fuel quantity indication and the EICAS message FUEL IMBALANCE does not show, do these steps:
 - (a) If the MAT shows no maintenance messages (ACTIVE or NOT ACTIVE) related to fuel quantity indication, do these steps:
 - 1) Do this task: Fuel Quantity Processor Unit (FQPU) - Operational Check, AMM TASK 28-41-00-710-802.
 - 2) Do this task: Fuel Quantity Indicating System (FQIS) TANK UNITS and DENSITOMETERS - Operational Check, AMM TASK 28-41-00-710-801.
 - 3) If you find no problems with the FQPU, TANK UNITS, or DENSITOMETERS, then no further action is necessary.
 - (b) If the MAT shows maintenance message(s) (ACTIVE or NOT ACTIVE) related to fuel quantity indication, then do the associated fault isolation procedure.

————— END OF TASK —————

854. Right Main Tank, Forward Boost Pump Circuit Breaker Open - Fault Isolation

A. Description



DO NOT CLOSE A CIRCUIT BREAKER FOR A FUEL PUMP THAT OPENED (TRIPPED) UNTIL YOU CORRECT THE PROBLEM. THIS CONDITION CAN CAUSE A FIRE OR EXPLOSION.

28-AWL-17: CDCCL

- (1) The circuit breaker, R FWD FUEL BOOST PUMP L AC SECT 2, is found to be open during flight or on the ground. Do not reset this circuit breaker before you do the Initial Evaluation below. This problem can be caused by a short circuit in the wiring for the boost pump, a damaged boost pump, or a damaged circuit breaker or relay.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

B. Initial Evaluation

NOTE: If you make a decision to dispatch the airplane with an open circuit breaker, do the steps in the MEL to deactivate the right forward boost pump. Operate the airplane per MEL procedures.

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28-AWL-17: CDCCL

- (1) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the right forward boost pump, M28204.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

- (a) If the right forward boost pump is okay, then continue.



DO NOT CLOSE A CIRCUIT BREAKER FOR A FUEL PUMP THAT OPENED (TRIPPED) UNTIL YOU CORRECT THE PROBLEM. THIS CONDITION CAN CAUSE A FIRE OR EXPLOSION.



DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (3) Do a check of this circuit breaker:
- Left Power Management Panel, P110**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|-----------------------------------|
| C | 18 | C28302 | R FWD FUEL BOOST PUMP L AC SECT 2 |
- (4) If the circuit breaker is closed, do this task: R FWD FUEL BOOST PUMP (PRESS SWITCH IS LOW, PUMP COMMANDED ON) - Fault Isolation, 28-22 TASK 887.
- (5) If the circuit breaker is open, install a circuit breaker lock, STD-576, and safety tag, then do the troubleshooting steps in this procedure.

C. Fault Isolation Procedure

- (1) Make sure there is minimum of 13,000 lb (5897 kg) of fuel in the right main tank.

NOTE: This will cover the boost pump with fuel.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Make sure the landing gear downlocks are installed (AMM TASK 32-00-30-480-801).

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OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Get access to the right forward fuel boost pump (AMM TASK 28-22-05-000-801).
- (5) Examine the right forward fuel boost pump and the area around it for signs fuel leakage.
 - (a) If there are signs of fuel leakage, find the source of the fuel leakage and repair it.
- (6) Disconnect the electrical connector DM28201 from the boost pump (WDM 28-22-21).
- (7) Examine the airplane and pump sides of the electrical connector DM28201 for damage.
 - (a) Repair all the damage that you find.
- (8) Make sure that the electrical connector DM28201 is disconnected.
- (9) Remove the circuit breaker lock and safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

- (10) Put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
- (11) After 5 minutes, put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
- (12) If the R FWD FUEL BOOST PUMP L AC SECT 2 (110C18) circuit breaker stays closed, then do these steps:
 - (a) Connect the electrical connector DM28201 to the boost pump (WDM 28-22-21).
 - (b) Put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
 - (c) Make sure that the amber PRESS light goes off, for the R PUMPS FWD switch-light on the P5 Overhead Panel.
 - (d) After 5 minutes, put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
 - (e) If the R FWD FUEL BOOST PUMP L AC SECT 2 (110C18) circuit breaker stays closed, then the circuit is operational.
 - (f) If the R FWD FUEL BOOST PUMP L AC SECT 2 (110C18) circuit breaker opened, then do these steps:
 - 1) Replace the right forward boost pump, M28201.

These are the tasks:

Boost Pump Motor-Impeller - Removal, AMM TASK 28-22-05-000-801,
Boost Pump Motor-Impeller - Installation, AMM TASK 28-22-05-400-801.

- 2) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

- 3) Put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.

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- 4) Make sure that the amber PRESS light goes off, for the R PUMPS FWD switch-light on the P5 Overhead Panel.
 - 5) After 5 minutes, put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
 - 6) If the R FWD FUEL BOOST PUMP LAC SECT 2 (110C18) circuit breaker stays closed, then the circuit is operational.
- (13) If the R FWD FUEL BOOST PUMP LAC SECT 2 (110C18) circuit breaker opened, then continue.
 - (14) Replace the R FWD FUEL BOOST PUMP CTRL relay, K28241 (WDM 28-22-21).
 - (15) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP LAC SECT 2

- (16) Put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
- (17) After 5 minutes, put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
- (18) If the R FWD FUEL BOOST PUMP LAC SECT 2 (110C18) circuit breaker stays closed, then do these steps:
 - (a) Connect the electrical connector DM28201 to the boost pump (WDM 28-22-21).
 - (b) Put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
 - (c) Make sure that the amber PRESS light goes off, for the R PUMPS FWD switch-light on the P5 Overhead Panel.
 - (d) After 5 minutes, put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
 - (e) If the R FWD FUEL BOOST PUMP LAC SECT 2 (110C18) circuit breaker stays closed, then the circuit is operational.
- (19) If the R FWD FUEL BOOST PUMP LAC SECT 2 (110C18) circuit breaker opened, then continue.
- (20) Replace the R FWD FUEL BST PUMP SWITCHING relay, K28243 (WDM 28-22-21).
- (21) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP LAC SECT 2

- (22) Put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
- (23) After 5 minutes, put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
- (24) If the R FWD FUEL BOOST PUMP LAC SECT 2 (110C18) circuit breaker stays closed, then do these steps:
 - (a) Connect the electrical connector DM28201 to the boost pump (WDM 28-22-21).
 - (b) Put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
 - (c) Make sure that the amber PRESS light goes off, for the R PUMPS FWD switch-light on the P5 Overhead Panel.

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- (d) After 5 minutes, put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
- (e) If the R FWD FUEL BOOST PUMP LAC SECT 2 (110C18) circuit breaker stays closed, then the circuit is operational.
- (25) If the R FWD FUEL BOOST PUMP LAC SECT 2 (110C18) circuit breaker opened, then continue.
- (26) Replace the R FWD FUEL BOOST PUMP LAC SECT 2 circuit breaker, C28302 (WDM 28-22-21).
- (27) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP LAC SECT 2

- (28) Put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
- (29) After 5 minutes, put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
- (30) If the R FWD FUEL BOOST PUMP LAC SECT 2 (110C18) circuit breaker stays closed, then do these steps:
 - (a) Connect the electrical connector DM28201 to the boost pump (WDM 28-22-21).
 - (b) Put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
 - (c) Make sure that the amber PRESS light goes off, for the R PUMPS FWD switch-light on the P5 Overhead Panel.
 - (d) After 5 minutes, put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
 - (e) If the R FWD FUEL BOOST PUMP LAC SECT 2 (110C18) circuit breaker stays closed, then the circuit is operational.
- (31) If the R FWD FUEL BOOST PUMP LAC SECT 2 (110C18) circuit breaker opened, then continue.
- (32) Do a wiring check between these pins of connector DM28201 at the right forward boost pump M28201, and the R FWD FUEL BOOST PUMP LAC SECT 2 (110C18) circuit breaker, C28302 (WDM 28-22-21):

DM28201		C28302
pin 2	.....	pin A2
pin 4	.....	pin B2
pin 6	.....	pin C2

- (a) Find the problem and repair the wiring.
- (33) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP LAC SECT 2

- (34) Put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
- (35) After 5 minutes, put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.

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- (36) Make sure that the R FWD FUEL BOOST PUMP L AC SECT 2 (110C18) circuit breaker stays closed.
- (37) Connect the electrical connector DM28201 to the boost pump (WDM 28-22-21).
- (38) Put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
- (39) Make sure that the amber PRESS light goes off, for the R PUMPS FWD switch-light on the P5 Overhead Panel.
- (40) After 5 minutes, put the R PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
- (41) If the R FWD FUEL BOOST PUMP L AC SECT 2 (110C18) circuit breaker stays closed, then the circuit is operational.

————— END OF TASK —————

855. Left Main Tank, Forward Boost Pump Circuit Breaker Open - Fault Isolation

A. Description



WARNING

DO NOT CLOSE A CIRCUIT BREAKER FOR A FUEL PUMP THAT OPENED (TRIPPED) UNTIL YOU CORRECT THE PROBLEM. THIS CONDITION CAN CAUSE A FIRE OR EXPLOSION.

28-AWL-17: CDCCL

- (1) The circuit breaker, L FWD FUEL BOOST PUMP GND SVCE, is found to be open during flight or on the ground. Do not reset this circuit breaker before you do the Initial Evaluation below. This problem can be caused by a short circuit in the wiring for the boost pump, a damaged boost pump, or a damaged circuit breaker or relay.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

B. Initial Evaluation

NOTE: If you make a decision to dispatch the airplane with an open circuit breaker, do the steps in the MEL to deactivate the left forward boost pump. Operate the airplane per MEL procedures.

28-AWL-17: CDCCL

- (1) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the left forward boost pump, M28101.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

- (a) If the left forward boost pump is okay, then continue.



WARNING

DO NOT CLOSE A CIRCUIT BREAKER FOR A FUEL PUMP THAT OPENED (TRIPPED) UNTIL YOU CORRECT THE PROBLEM. THIS CONDITION CAN CAUSE A FIRE OR EXPLOSION.

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(WARNING PRECEDES)



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, a person must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.

- (3) Do a check of this circuit breaker:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

- (4) If the circuit breaker is closed, do this task: L FWD FUEL BOOST PUMP (PRESS SWITCH IS LOW, PUMP COMMANDED ON) - Fault Isolation, 28-22 TASK 886.
- (5) If the circuit breaker is open, install a circuit breaker lock, STD-576, and safety tag, then do the troubleshooting steps in this procedure.

C. Fault Isolation Procedure

- (1) Make sure there is minimum of 13,000 lb (5897 kg) of fuel in the left main fuel tank.

NOTE: This will cover the boost pump with fuel.



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Make sure the landing gear downlocks are installed (AMM TASK 32-00-30-480-801).



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Get access to the left forward fuel boost pump (AMM TASK 28-22-05-000-801).
- (5) Examine the left forward fuel boost pump and the area around it for fuel leakage.
 - (a) If there are signs of fuel leakage, find the source of the fuel leakage and repair it.
- (6) Disconnect the electrical connector DM28101 from the boost pump (WDM 28-22-11).
- (7) Examine the airplane and pump sides of the electrical connector DM28101 for damage.
 - (a) Repair all the damage that you find.
- (8) Make sure that the electrical connector DM28101 is disconnected.

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- (9) Remove the circuit breaker lock and safety tag, and close this circuit breaker:

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

- (10) Put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
- (11) After 5 minutes, put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
- (12) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker stays closed, then do these steps:
- Connect the electrical connector DM28101 to the boost pump (WDM 28-22-11).
 - Put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
 - Make sure that the amber PRESS light goes off, for the L PUMPS FWD switch-light on the P5 Overhead Panel.
 - After 5 minutes, put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
 - If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker stays closed, then the circuit is operational.
 - If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker opened, then do these steps:

- 1) Replace the left forward boost pump, M28101.

These are the tasks:

Boost Pump Motor-Impeller - Removal, AMM TASK 28-22-05-000-801,

Boost Pump Motor-Impeller - Installation, AMM TASK 28-22-05-400-801.

- 2) Close this circuit breaker:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

- 3) Put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
 - 4) Make sure that the amber PRESS light goes off, for the L PUMPS FWD switch-light on the P5 Overhead Panel.
 - 5) After 5 minutes, put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
 - 6) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker stays closed, then the circuit is operational.
- (13) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker opened, then continue.
- (14) Replace the L FWD FUEL BST PUMP CTRL relay, K28121 (WDM 28-22-11).
- (15) Close this circuit breaker:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

- (16) Put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.

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- (17) After 5 minutes, put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
- (18) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker stays closed, then do these steps:
 - (a) Connect the electrical connector DM28101 to the boost pump (WDM 28-22-11).
 - (b) Put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
 - (c) Make sure that the amber PRESS light goes off, for the L PUMPS FWD switch-light on the P5 Overhead Panel.
 - (d) After 5 minutes, put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
 - (e) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker stays closed, then the circuit is operational.
- (19) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker opened, then continue.
- (20) Replace the L FWD FUEL BST PUMP SWITCHING relay, K28120 (WDM 28-22-11).
- (21) Close this circuit breaker:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

- (22) Put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
- (23) After 5 minutes, put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
- (24) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker stays closed, then do these steps:
 - (a) Connect the electrical connector DM28101 to the boost pump (WDM 28-22-11).
 - (b) Put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
 - (c) Make sure that the amber PRESS light goes off, for the L PUMPS FWD switch-light on the P5 Overhead Panel.
 - (d) After 5 minutes, put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
 - (e) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker stays closed, then the circuit is operational.
- (25) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker opened, then continue.
- (26) Replace the L FWD FUEL BOOST PUMP GND SVCE circuit breaker, C28301 (WDM 28-22-11).
- (27) Make sure that this circuit breaker is closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

- (28) Put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
- (29) After 5 minutes, put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.

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- (30) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker stays closed, then do these steps:
- (a) Connect the electrical connector DM28101 to the boost pump (WDM 28-22-11).
 - (b) Put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
 - (c) Make sure that the amber PRESS light goes off, for the L PUMPS FWD switch-light on the P5 Overhead Panel.
 - (d) After 5 minutes, put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
 - (e) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker stays closed, then the circuit is operational.
- (31) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker opened, then continue.
- (32) Do a wiring check between these pins of connector DM28101 at the left forward boost pump M28101, and the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker, C28301 (WDM 28-22-11):

DM28101		C28301	
pin 2	.....	pin A2	
pin 4	.....	pin B2	
pin 6	.....	pin C2	

- (a) Find the problem and repair the wiring.
- (33) Close this circuit breaker:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

- (34) Put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
- (35) After 5 minutes, put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
- (36) Make sure that the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker stays closed.
- (37) Connect the electrical connector DM28101 to the fuel pump (WDM 28-22-11).
- (38) Put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the ON position.
- (39) Make sure that the amber PRESS light goes off, for the L PUMPS FWD switch-light on the P5 Overhead Panel.
- (40) After 5 minutes, put the L PUMPS FWD switch-light, on the P5 Overhead Panel, to the off position.
- (41) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker stays closed, then the circuit is operational.

———— **END OF TASK** ————

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856. Right Main Tank, Aft Boost Pump Circuit Breaker Open - Fault Isolation

A. Description



DO NOT CLOSE A CIRCUIT BREAKER FOR A FUEL PUMP THAT OPENED (TRIPPED) UNTIL YOU CORRECT THE PROBLEM. THIS CONDITION CAN CAUSE A FIRE OR EXPLOSION.

 28-AWL-17: CDCCL

- (1) The circuit breaker, RAFT FUEL BOOST PUMP, is found to be open during flight or on the ground. Do not reset this circuit breaker before you do the Initial Evaluation below. This problem can be caused by a short circuit in the wiring for the boost pump, a damaged boost pump, or a damaged circuit breaker or relay.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

B. Initial Evaluation

NOTE: If you make a decision to dispatch the airplane with an open circuit breaker, do the steps in the MEL to deactivate the right aft boost pump. Operate the airplane per MEL procedures.

 28-AWL-17: CDCCL

- (1) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the right aft boost pump, M28202.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

- (a) If the right aft boost pump is okay, then continue.



DO NOT CLOSE A CIRCUIT BREAKER FOR A FUEL PUMP THAT OPENED (TRIPPED) UNTIL YOU CORRECT THE PROBLEM. THIS CONDITION CAN CAUSE A FIRE OR EXPLOSION.



DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, a person must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.

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- (3) Do a check of this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP

- (4) If the circuit breaker is closed, do this task: R AFT FUEL BOOST PUMP (PRESS SWITCH IS LOW, PUMP COMMANDED ON) - Fault Isolation, 28-22 TASK 871.
- (5) If the circuit breaker is open, install a circuit breaker lock, STD-576, and safety tag, then do the troubleshooting steps in this procedure.

C. Fault Isolation Procedure

- (1) Make sure there is minimum of 170,000 lb (77,111 kg) of fuel in the center fuel tank and 6000 lb (2722 kg) of fuel in the right main tank.

NOTE: This will cover the boost pump and boost pump inlet with fuel.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Make sure the landing gear downlocks are installed (AMM TASK 32-00-30-480-801).



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Get access to the right aft fuel boost pump (AMM TASK 28-22-05-000-801).
- (5) Examine the right aft fuel boost pump and the area around it for signs of fuel leakage.
- (a) If there are signs of fuel leakage, find the source of the fuel leakage and repair it.
- (6) Disconnect the electrical connector DM28202 from the boost pump (WDM 28-22-22).
- (7) Examine the airplane and pump sides of the electrical connector DM28202 for damage.
- (a) Repair all the damage that you find.
- (8) Make sure that the electrical connector DM28202 is disconnected.
- (9) Remove the circuit breaker lock and safety tag, and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP

- (10) Put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
- (11) After 5 minutes, put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
- (12) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker stays closed, then do these steps:
- (a) Connect the electrical connector DM28202 to the fuel pump (WDM 28-22-22).
- (b) Put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.

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- (c) Make sure that the amber PRESS light goes off, for the R PUMPS AFT switch-light on the P5 Overhead Panel.
- (d) After 5 minutes, put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
- (e) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker stays closed, then the circuit is operational.
- (f) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker opened, then do these steps:
 - 1) Replace the left aft boost pump, M28202.

These are the tasks:

Boost Pump Motor-Impeller - Removal, AMM TASK 28-22-05-000-801,

Boost Pump Motor-Impeller - Installation, AMM TASK 28-22-05-400-801.

- 2) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP

- 3) Put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
 - 4) Make sure that the amber PRESS light goes off, for the R PUMPS AFT switch-light on the P5 Overhead Panel.
 - 5) After 5 minutes, put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
 - 6) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker stays closed, then the circuit is operational.
- (13) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker opened, then continue.
 - (14) Replace the R AFT FUEL BOOST PUMP CTRL relay, K28242 (WDM 28-22-22).
 - (15) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP

- (16) Put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
- (17) After 5 minutes, put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
- (18) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker stays closed, then do these steps:
 - (a) Connect the electrical connector DM28202 to the boost pump (WDM 28-22-22).
 - (b) Put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
 - (c) Make sure that the amber PRESS light goes off, for the R PUMPS AFT switch-light on the P5 Overhead Panel.
 - (d) After 5 minutes, put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
 - (e) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker stays closed, then the circuit is operational.
- (19) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker opened, then continue.

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- (20) Replace the R AFT FUEL BOOST PUMP circuit breaker, C28300 (WDM 28-22-22).
(21) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP

- (22) Put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
(23) After 5 minutes, put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
(24) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker stays closed, then do these steps:
(a) Connect the electrical connector DM28202 to the fuel pump (WDM 28-22-22).
(b) Put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
(c) Make sure that the amber PRESS light goes off, for the R PUMPS AFT switch-light on the P5 Overhead Panel.
(d) After 5 minutes, put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
(e) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker stays closed, then the circuit is operational.
(25) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker opened, then continue.
(26) Do a wiring check between these pins of connector DM28202 at the right aft boost pump M28202, and the R AFT FUEL BOOST PUMP (210E27) circuit breaker, C28300 (WDM 28-22-22):

DM28202	C28300
pin 2	pin A2
pin 4	pin B2
pin 6	pin C2

- (a) Find the problem and repair the wiring.
(27) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP

- (28) Put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
(29) After 5 minutes, put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the OFF position.
(30) Make sure that the R AFT FUEL BOOST PUMP (210E27) circuit breaker stays closed.
(31) Connect the electrical connector DM28202 to the fuel pump (WDM 28-22-22).
(32) Put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
(33) Make sure that the amber PRESS light goes off, for the R PUMPS AFT switch-light on the P5 Overhead Panel.
(34) After 5 minutes, put the R PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.

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- (35) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker stays closed, then the circuit is operational.

————— END OF TASK —————

857. Left Main Tank, Aft Boost Pump Circuit Breaker Open - Fault Isolation

A. Description



DO NOT CLOSE A CIRCUIT BREAKER FOR A FUEL PUMP THAT OPENED (TRIPPED) UNTIL YOU CORRECT THE PROBLEM. THIS CONDITION CAN CAUSE A FIRE OR EXPLOSION.

28-AWL-17: CDCCL

- (1) The circuit breaker, L AFT FUEL BOOST PUMP, is found to be open during flight or on the ground. Do not reset this circuit breaker before you do the Initial Evaluation below. This problem can be caused by a short circuit in the wiring for the boost pump, a damaged boost pump, or a damaged circuit breaker or relay.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

B. Initial Evaluation

NOTE: If you make a decision to dispatch the airplane with an open circuit breaker, do the steps in the MEL to deactivate the left aft boost pump. Operate the airplane per MEL procedures.

28-AWL-17: CDCCL

- (1) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the left aft boost pump, M28102.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

- (a) If the left aft boost pump is okay, then continue.



DO NOT CLOSE A CIRCUIT BREAKER FOR A FUEL PUMP THAT OPENED (TRIPPED) UNTIL YOU CORRECT THE PROBLEM. THIS CONDITION CAN CAUSE A FIRE OR EXPLOSION.



DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, a person must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.

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- (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (3) Do a check of this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP

- (4) If the circuit breaker is closed, do this task: L AFT FUEL BOOST PUMP (PRESS SWITCH IS LOW, PUMP COMMANDED ON) - Fault Isolation, 28-22 TASK 870.
- (5) If the circuit breaker is open, install a circuit breaker lock, STD-576, and safety tag, then do the troubleshooting steps in this procedure.

C. Fault Isolation Procedure

- (1) Make sure there is minimum of 170,000 lb (77,111 kg) of fuel in the center fuel tank and 6000 lb (2722 kg) of fuel in left main fuel tank.

NOTE: This will cover the boost pump and the boost pump inlet with fuel.



MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Make sure the landing gear downlocks are installed (AMM TASK 32-00-30-480-801).



OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (4) Get access to the left aft fuel boost pump (AMM TASK 28-22-05-000-801).
- (5) Examine the left aft fuel boost pump and the area around it for signs of fuel leakage.
- (a) If there are signs of fuel leakage, find the source of the fuel leakage and repair it.
- (6) Disconnect the electrical connector DM28102 from the boost pump (WDM 28-22-12).
- (7) Examine the airplane and pump sides of the electrical connector DM28102 for damage.
- (a) Repair all the damage that you find.
- (8) Make sure that the electrical connector DM28102 is disconnected.
- (9) Remove the circuit breaker lock and safety tag, and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP

- (10) Put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
- (11) After 5 minutes, put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
- (12) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker stays closed, then do these steps:

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- (a) Connect the electrical connector DM28102 to the boost pump (WDM 28-22-12).
- (b) Put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
- (c) Make sure that the amber PRESS light goes off, for the L PUMPS AFT switch-light on the P5 Overhead Panel.
- (d) After 5 minutes, put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
- (e) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker stays closed, then the circuit is operational.
- (f) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker opened, then do these steps:

- 1) Replace the left aft boost pump, M28102.

These are the tasks:

Boost Pump Motor-Impeller - Removal, AMM TASK 28-22-05-000-801,

Boost Pump Motor-Impeller - Installation, AMM TASK 28-22-05-400-801.

- 2) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP

- 3) Put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
 - 4) Make sure that the amber PRESS light goes off, for the L PUMPS AFT switch-light on the P5 Overhead Panel.
 - 5) After 5 minutes, put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
 - 6) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker stays closed, then the circuit is operational.
- (13) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker opened, then continue.
 - (14) Replace the L AFT FUEL BOOST PUMP CONTORL relay, K28123 (WDM 28-22-12).
 - (15) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP

- (16) Put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
- (17) After 5 minutes, put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
- (18) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker stays closed, then do these steps:
 - (a) Connect the electrical connector DM28102 to the boost pump (WDM 28-22-12).
 - (b) Put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
 - (c) Make sure that the amber PRESS light goes off, for the L PUMPS AFT switch-light on the P5 Overhead Panel.
 - (d) After 5 minutes, put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.

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- (e) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker stays closed, then the circuit is operational.
- (19) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker opened, then continue.
- (20) Replace the L AFT FUEL BOOST PUMP circuit breaker, C28303 (WDM 28-22-12).
- (21) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP

- (22) Put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
- (23) After 5 minutes, put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
- (24) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker stays closed, then do these steps:
 - (a) Connect the electrical connector DM28102 to the boost pump (WDM 28-22-12).
 - (b) Put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
 - (c) Make sure that the amber PRESS light goes off, for the L PUMPS AFT switch-light on the P5 Overhead Panel.
 - (d) After 5 minutes, put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
 - (e) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker stays closed, then the circuit is operational.
- (25) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker opened, then continue.
- (26) Do a wiring check between these pins of connector DM28102 at the left aft boost pump M28102, and the L AFT FUEL BOOST PUMP (110E2) circuit breaker, C28303 (WDM 28-22-12):

DM28102	C28303
pin 2	pin A2
pin 4	pin B2
pin 6	pin C2

- (a) Find the problem and repair the wiring.
- (27) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP

- (28) Put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
- (29) After 5 minutes, put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
- (30) Make sure that the L AFT FUEL BOOST PUMP (110E2) circuit breaker stays closed.
- (31) Connect the electrical connector DM28102 to the boost pump (WDM 28-22-12).
- (32) Put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the ON position.
- (33) Make sure that the amber PRESS light goes off, for the L PUMPS AFT switch-light on the P5 Overhead Panel.

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- (34) After 5 minutes, put the L PUMPS AFT switch-light, on the P5 Overhead Panel, to the off position.
- (35) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker stays closed, then the circuit is operational.

————— **END OF TASK** —————

859. Excessive Water Accumulation in the Fuel Tanks

A. General

- (1) Blockage of the water scavenge pump in one of the fuel tanks can cause excessive water accumulation in that fuel tank. This water accumulation is usually found during sumping. If an excessive quantity of water is collected in the fuel tank, it can cause problems in the fuel quantity indicating system or an engine flameout.

NOTE: An excessive quantity of water in a main tank is 2 qt (2 l) or more. An excessive quantity of water in the center tank is 6 qt (6 l) or more.

- (2) The water scavenge jet pump operates on motive flow provided by the applicable tank boost or override pumps. Faults related to the applicable tank boost or override pumps should be corrected before continuing troubleshooting.

B. Initial Evaluation

- (1) At a convenient time after refueling, do the fuel tank sumping operation to confirm excessive water in the fuel tank (AMM TASK 12-11-02-680-801).

NOTE: Wait a sufficient quantity time after refueling to let the water in the fuel move to the bottom of the fuel tank. Water sinks in fuel at the rate of 1 ft (305 mm) an hour.

C. Fault Isolation Procedure

- (1) For the fuel tank(s) with excessive water accumulation, do this task: Water Scavenge Jet Pump Check, AMM TASK 28-22-13-200-801.

NOTE: Intermittent faults such as ice may not be visible at the time of the nozzle check.

- (a) Monitor the water accumulation in the applicable fuel tank(s) after subsequent flights (AMM TASK 12-11-02-680-801).
 - 1) If there is no subsequent excessive water accumulation in the applicable tanks, then you corrected the fault.
 - 2) If there is excessive water accumulation after subsequent flights continue with the fault isolation.
 - (b) If there are signs of contamination or debris at the water scavenge jet pump nozzle, continue with the fault isolation.
- (2) Do these steps to do a check of the applicable fuel tank water scavenge inlet:



WARNING

OBEY THE PRECAUTIONS FOR PURGING AND FUEL TANK ENTRY. IF YOU DO NOT OBEY THE PRECAUTIONS, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) Do this task: Purging and Fuel Tank Entry, AMM TASK 28-11-00-010-801.
- (b) Remove the applicable fuel tank access door (AMM TASK 28-11-01-000-801, AMM TASK 28-11-02-000-801).
- (c) Find the water scavenge inlet screen.
- (d) Do a check of the screen for blockage.

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- 1) Remove any debris.
- (e) Install the applicable fuel tank access door (AMM TASK 28-11-01-400-801, AMM TASK 28-11-02-400-801).
- (f) Monitor the water accumulation in the applicable fuel tank(s) after subsequent flights (AMM TASK 12-11-02-680-801).
 - 1) If there is no subsequent excessive water accumulation in the applicable tanks, then you corrected the fault.

———— **END OF TASK** ————

860. ELCU (CTR L OVRD FUEL PUMP) in P100 not in Commanded Position - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11033.

B. Initial Evaluation

- (1) Make sure the airplane is not operating with low ground power.

NOTE: The left override/jettison pump is inhibited when operating with low ground power. Low ground power can occur when operating on a single source of power. The left engine generator or the APU can be used as a single source of power to operate the left override/jettison pump.

- (2) Do a check of the MAT for maintenance message 23-43410.
 - (a) If the MAT shows maintenance message 23-43410, do this task: CENTER L FUEL PUMP Switch - Fault Isolation, 28-22 TASK 804.



DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (3) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (4) Make sure there is a minimum of 5000 lb (2268 kg) of fuel in the center fuel tank for the procedure.

NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.

 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (5) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (6) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

NOTE: The refueling station door must be open to operate the center fuel pumps.

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- (b) Push the CENTER PUMPS L switch to the ON position, on the overhead panel P5.
NOTE: Let the pump run for 15 seconds.
- (c) Push the CENTER PUMPS L switch to the OFF position.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to replace the electronic load control unit (ELCU) (WDM 28-22-13):

- (a) Make sure all electrical power is off at the Electrical Control Panel, on the P5 Overhead Panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.

- (b) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (c) Replace electronic load control unit (ELCU) M28109, in the left power panel (LPP) P100.
 - (d) Supply electrical power to the left main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
 - (e) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (f) Push the CENTER PUMPS L switch to the ON position.
NOTE: Let the pump run for 15 seconds.
 - (g) Push the CENTER PUMPS L switch to the OFF position.
 - (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the Power Panel Controller, M24500, in the P100 Power Panel.

These are the tasks:

Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,

Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.

- (a) Push the CENTER PUMPS L switch to the ON position.
NOTE: Let the pump run for 15 seconds.
 - (b) Push the CENTER PUMPS L switch to the OFF position.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these wiring checks:

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- (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (b) Disconnect connector D10005P from the P100 Power Panel.
(c) Do a wiring check between these pins on the Left Ovr Pump GFI CTRL Relay, K28253 and the connector D10005P.

D10005P	K28253
pin F	pin A2
pin E	pin B2
pin D	pin C2

- (d) Disconnect the connector DM28103 from the Center Left Override Fuel Pump, M28103.
(e) Do a wiring check between these pins on the Left Ovr Pump GFI CTRL Relay, K28253 and the connector DM28103.

K28253	DM28103
pin A1	pin B
pin B1	pin D
pin C1	pin F

- (f) Disconnect connector D10025P from the Power Panel, P100.
(g) Disconnect connector D11005P from the Left Power Management Panel (LPMP), P110.
(h) Do a wiring check between these pins on connector D11005P on the LPMP, P110 and the connector D10025P on the Power Panel P100.

D11005P	D10025P
pin 13	pin 13

- (i) Do a check of the internal wiring between the Power Panel Controller, M24500 and the CTR L OVRD FUEL PUMP ELCU, M28109 in the Power Panel P100 (WDM 28-22-13).
(j) Do these steps to check the wiring to the Left Center Pump Inhibit Relay K28130, in the LPMP P110:

- 1) Remove the Left Center Pump Inhibit Relay K28130 from the LPMP P110.
- 2) Disconnect the connector D11005, from the LPMP P110.

- (k) Do this wiring check between the Left Center Pump Inhibit Relay K28130 and the connector D11005:

DK28130	D11005
pin B3	pin 13

- (l) Repair the wiring.
(m) Install these components removed for access:
 - 1) Install the Left Center Pump Inhibit relay K28130, in the LPMP P110.
 - 2) Connect the connector D10025P to the LPMP P100.
 - 3) Connect the connector D11005 to the Power Panel P110.

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- 4) Connect the connector D10005 to the Power Panel P100.
- 5) Connect the connector DM28103 from the Center Left Override Fuel Pump, M28103.
- (n) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (o) Push the CENTER PUMPS L switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (p) Push the CENTER PUMPS L switch to the OFF position.
- (q) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (r) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Do these steps to do a check for problems with the CENTER L FUEL PUMP Switch in the flight compartment:
 - (a) Do this task: CENTER L FUEL PUMP Switch - Fault Isolation, 28-22 TASK 804.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— **END OF TASK** —————

861. P100 Power Panel Controller CTR L OVRD Fuel Pump Function is Disabled.

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11053.

B. Initial Evaluation

- (1) Do a check of the MAT for maintenance message 23-43410.
 - (a) If the MAT shows maintenance message 23-43410, do this task: CENTER L FUEL PUMP Switch - Fault Isolation, 28-22 TASK 804.



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (3) Make sure there is a minimum of 5000 LBS (2300 KGS) of fuel in the center fuel tank for the procedure.
NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.
 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (4) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.

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- (5) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Do the self-test for the P100 Left Power Management Panel. To do this, do this task:
ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
 - (b) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- NOTE: The refueling station door must be open to operate the center fuel pumps.
- (c) Push the CENTER PUMPS L switch to the ON position, on the overhead panel P5.
NOTE: Let the pump run for 15 seconds.
 - (d) Push the CENTER PUMPS L switch to the OFF position.
 - (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
 - (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the Power Panel Controller, M24500, in the P100 Power Panel.
- These are the tasks:
- Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,
Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.
- (a) Do the self-test for the P100 Left Power Management Panel. To do this, do this task:
ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
 - (b) Push the CENTER PUMPS L switch to the ON position.
NOTE: Let the pump run for 15 seconds.
 - (c) Push the CENTER PUMPS L switch to the OFF position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do these steps to replace the electronic load control unit (ELCU) (WDM 28-22-13):
- (a) Make sure all electrical power is off at the Electrical Control Panel, on the P5 Overhead Panel.
NOTE: This step will remove 115V AC electrical power for removal of the ELCU.
 - (b) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110			
<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL
- (c) Replace electronic load control unit (ELCU) M28109, in the left power panel (LPP) P100.
 - (d) Supply electrical power to the left main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.

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- (e) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (f) Do the self-test for the P100 Left Power Management Panel. To do this, do this task:
ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
- (g) Push the CENTER PUMPS L switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (h) Push the CENTER PUMPS L switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (j) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these wiring checks:

- (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (b) Disconnect the connector DM28103 from the Center Left Override Fuel Pump, M28103.
- (c) Disconnect connector D10005P from the P100 Power Panel.
- (d) Do a wiring check between these pins on connector DM28103 and the connector D10005P on the Power Panel, P100.

D10005P	DM28103
pin F	pin B
pin E	pin D
pin D	pin F

- (e) Disconnect connector D10025P from the Power Panel, P100.
- (f) Disconnect connector D11005P from the Left Power Management Panel (LPMP), P110.
- (g) Do a wiring check between these pins on connector D11005P on the LPMP, P110 and the connector D10025P on the Power Panel P100.

D11005P	D10025P
pin 13	pin 13

- (h) Do a check of the internal wiring between the Power Panel Controller, M24500 and the CTR L OVRD FUEL PUMP ELCU, M28109 in the Power Panel P100 (WDM 28-22-13).
- (i) Do a check of the internal wiring between the Power Panel Controller, M24500 and connector D10025 on the P100 Power Panel.
- (j) Do a check of the internal wiring between the Power Panel Controller, M24500 and connector D10021 on the P100 Power Panel.
- (k) Do these steps to check the wiring to the Left Center Pump Inhibit Relay K28130, in the LPMP P110:
- 1) Remove the Left Center Pump Inhibit Relay K28130 from the LPMP P110.

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- 2) Disconnect the connector D11005, from the LPMP P110.
- (l) Do this wiring check between the Left Center Pump Inhibit Relay K28130 and the connector D11005:

DK28130	D11005
pin B3	pin 13

- (m) Repair the wiring.
- (n) Install these components removed for access:
 - 1) Install the Left Center Pump Inhibit relay K28130, in the LPMP P110.
 - 2) Connect the connector D10025P to the LPMP P110.
 - 3) Connect the connector D11005 to the Power Panel P100.
 - 4) Connect the connector D10005 to the Power Panel P100.
 - 5) Connect the connector DM28103 from the Center Left Override Fuel Pump, M28103.

- (o) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (p) Do the self-test for the P100 Left Power Management Panel. To do this, do this task: ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
- (q) Push the CENTER PUMPS L switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (r) Push the CENTER PUMPS L switch to the OFF position.
- (s) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (t) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Do these steps to do a check for problems with the CENTER L FUEL PUMP Switch in the flight compartment:
 - (a) Do this task: CENTER L FUEL PUMP Switch - Fault Isolation, 28-22 TASK 804.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— **END OF TASK** —————

862. ELCU, CTR R OVRD FUEL PUMP (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12030.

B. Initial Evaluation

- (1) Make sure the airplane is not operating with low ground power.

NOTE: The right override/jettison pump is inhibited when operating with low ground power. Low ground power can occur when operating on a single source of power. The right engine generator can be used as a single source of power to operate the right override/jettison pump.

- (2) Do a check of the MAT for maintenance message 23-43770.

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- (a) If the MAT shows maintenance message 23-43770, do this task: CENTER R FUEL PUMP Switch - Fault Isolation, 28-22 TASK 805.



DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (3) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (4) Make sure there is a minimum of 5000 lb (2268 kg) of fuel in the center fuel tank for the procedure.
- NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.
- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (5) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (6) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

NOTE: The refueling station door must be open to operate the center fuel pumps.
 - (b) Push the CENTER PUMPS R switch to the ON position, on the overhead panel P5.

NOTE: Let the pump run for 15 seconds.
 - (c) Push the CENTER PUMPS R switch to the OFF position.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to replace the electronic load control unit (ELCU) (WDM 28-22-23):
- (a) Make sure all electrical power is off at the Electrical Control Panel, on the P5 Overhead Panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.
 - (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210			
<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL
 - (c) Replace the electronic load control unit (ELCU) M28213, in the right power panel (RPP) P200.

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- (d) Supply electrical power to the right main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (e) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (f) Push the CENTER PUMPS R switch to the ON position.
NOTE: Let the pump run for 15 seconds.
 - (g) Push the CENTER PUMPS R switch to the OFF position.
 - (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the Power Panel Controller Unit, M24501 in the Right Power Panel, P200.

These are the tasks:

Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,

Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.

- (a) Push the CENTER PUMPS R switch to the ON position.
NOTE: Let the pump run for 15 seconds.
 - (b) Push the CENTER PUMPS R switch to the OFF position.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these wiring checks:
- (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (b) Disconnect the connector DM28203 from the Center Right Override Fuel Pump, M28203.
- (c) Disconnect connector D20005P from the P200 Power Panel.
- (d) Do a wiring check between these pins on connector DM28203 and the connector D20005P on the Power Panel, P200.

<u>D20005P</u>		<u>DM28203</u>	
pin F	.....	pin B	
pin E	.....	pin D	
pin D	.....	pin F	

- (e) Disconnect connector D20025P from the Power Panel, P200.
- (f) Disconnect connector D21026P from the Right Power Management Panel (RPMP), P210.
- (g) Do a wiring check between these pins on connector D21026P on the LPMP, P210 and the connector D20025P on the Power Panel P200.

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D21026P

pin 19 pin 13

D20025P

- (h) Do a check of the internal wiring between the Power Panel Controller, M24501 and the CTR R OVRD FUEL PUMP ELCU, M28213 in the Power Panel P200 (WDM 28-22-13).
- (i) Do a check of the internal wiring between the Power Panel Controller, M24501 and connector D20025 on the P200 Power Panel.
- (j) Do a check of the internal wiring between the Power Panel Controller, M24501 and connector D20021 on the P200 Power Panel.
- (k) Do these steps to check the wiring to the Right Center Pump Inhibit Relay K28230, in the RPMP P210:
 - 1) Remove the Right Center Pump Inhibit Relay K28230 from the RPMP P210.
 - 2) Disconnect the connector D21026, from the RPMP P210.
- (l) Do this wiring check between the Right Center Pump Inhibit Relay K28230 and the connector D21026:

DK28230

pin B3 pin 19

D21026

- (m) Repair the wiring.
- (n) Install these components removed for access:
 - 1) Install the Right Center Pump Inhibit relay K28230, in the RPMP P210.
 - 2) Connect the connector D21026P to the RPMP P210.
 - 3) Connect the connector D20025 to the Power Panel P200.
 - 4) Connect the connector D20005 to the Power Panel P200.
 - 5) Connect the connector DM28203 from the Center Right Override Fuel Pump, M28203.
- (o) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (p) Do the self-test for the P200 Right Power Management Panel. To do this, do this task: ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
- (q) Push the CENTER PUMPS R switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (r) Push the CENTER PUMPS R switch to the OFF position.
- (s) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (t) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Do these steps to do a check for problems with the CENTER R FUEL PUMP Switch in the flight compartment:
 - (a) Do this task: CENTER R FUEL PUMP Switch - Fault Isolation, 28-22 TASK 805.

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

————— END OF TASK —————

863. P200 Power Panel Controller CTR R OVRD Fuel Pump Function is Disabled - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12038.

B. Initial Evaluation

- (1) Do a check of the MAT for maintenance message 23-43770.
(a) If the MAT shows maintenance message 23-43770, do this task: CENTER R FUEL PUMP Switch - Fault Isolation, 28-22 TASK 805.



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (3) Make sure there is a minimum of 5000 LBS (2300 KGS) of fuel in the center fuel tank for the procedure.
- NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.
- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (4) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (5) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Do the self-test for the P200 Right Power Management Panel. To do this, do this task: ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
 - (b) Open this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |

NOTE: The refueling station door must be open to operate the center fuel pumps.

- (c) Push the CENTER PUMPS R switch to the ON position, on the overhead panel P5.

NOTE: Let the pump run for 15 seconds.

- (d) Push the CENTER PUMPS R switch to the OFF position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

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C. Fault Isolation Procedure

- (1) Replace the Power Panel Controller, M24501, in the P200 Power Panel.

These are the tasks:

Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,

Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.

- (a) Do the self-test for the P200 Right Power Management Panel. To do this, do this task:
ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
- (b) Push the CENTER PUMPS R switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (c) Push the CENTER PUMPS R switch to the OFF position.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do these steps to replace the electronic load control unit (ELCU) (WDM 28-22-13):
- (a) Make sure all electrical power is off at the Electrical Control Panel, on the P5 Overhead Panel.
NOTE: This step will remove 115V AC electrical power for removal of the ELCU.
- (b) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (c) Replace electronic load control unit (ELCU) M28213, in the right power panel (RPP) P200.
- (d) Supply electrical power to the right main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (e) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (f) Do the self-test for the P200 Right Power Management Panel. To do this, do this task:
ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
- (g) Push the CENTER PUMPS R switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (h) Push the CENTER PUMPS R switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (j) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these wiring checks:

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- (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (b) Disconnect the connector DM28203 from the Center Right Override Fuel Pump, M28203.
- (c) Disconnect connector D20005P from the P200 Power Panel.
- (d) Do a wiring check between these pins on connector DM28203 and the connector D20005P on the Power Panel, P200.

D20005P	DM28203
pin F	pin B
pin E	pin D
pin D	pin F

- (e) Disconnect connector D20025P from the Power Panel, P200.
- (f) Disconnect connector D21026P from the Right Power Management Panel (RPMP), P210.
- (g) Do a wiring check between these pins on connector D21026P on the RPMP, P210 and the connector D20025P on the Power Panel P200.

D21026P	D20025P
pin 19	pin 13

- (h) Do a check of the internal wiring between the Power Panel Controller, M24501 and the CTR R OVRD FUEL PUMP ELCU, M28213 in the Power Panel P200 (WDM 28-22-13).
- (i) Do a check of the internal wiring between the Power Panel Controller, M24501 and connector D20025 on the P200 Power Panel.
- (j) Do a check of the internal wiring between the Power Panel Controller, M24501 and connector D20021 on the P200 Power Panel.
- (k) Do these steps to check the wiring to the Right Center Pump Inhibit Relay K28230, in the RPMP P210:
- 1) Remove the Right Center Pump Inhibit Relay K28230 from the RPMP P210.
 - 2) Disconnect the connector D21026, from the RPMP P210.
- (l) Do this wiring check between the Left Center Pump Inhibit Relay K28130 and the connector D21026:

DK28230	D21026
pin B3	pin 19

- (m) Repair the wiring.
- (n) Install these components removed for access:
- 1) Install the Right Center Pump Inhibit relay K28230, in the RPMP P210.
 - 2) Connect the connector D21026P to the RPMP P210.
 - 3) Connect the connector D20025 to the Power Panel P200.
 - 4) Connect the connector D20005 to the Power Panel P200.

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5) Connect the connector DM28203 from the Center Right Override Fuel Pump, M28203.

(o) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

(p) Do the self-test for the P200 Right Power Management Panel. To do this, do this task: ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.

(q) Push the CENTER PUMPS R switch to the ON position.

NOTE: Let the pump run for 15 seconds.

(r) Push the CENTER PUMPS R switch to the OFF position.

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

(t) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

(4) Do these steps to do a check for problems with the CENTER R FUEL PUMP Switch in the flight compartment:

(a) Do this task: CENTER R FUEL PUMP Switch - Fault Isolation, 28-22 TASK 805.

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

————— END OF TASK —————

864. CTR L OVRD FUEL PUMP (PRESS SWITCH IS LOW, PUMP COMMANDED ON) - Fault Isolation

A. Maintenance Messages

(1) This task is for maintenance message: 28-11042.

B. General

(1) This task is for maintenance message: 28-11042.

(2) Follow normal Fault Isolation Manual (FIM) procedures for any center pump low pressure maintenance message faults you see. However, be aware that the subject condition does not necessarily mean that there is a problem with the center pump(s) or related hardware.

(3) For certain fuel configurations it is possible for the EICAS message FUEL PUMP CENTER L to appear during initial climb. The fuel inlet can be uncovered temporarily during the steepest part of the climb. This causes the maintenance message 28-11042 to show on the MAT. This situation has been observed in 777-200ER airplanes with approximately 5000 lb (2268 kg) in the center fuel tank when the pitch angle is more than approximately +12 degrees.

(4) For certain fuel configurations it is possible for the center left pump low pressure light to come on, and FUEL PUMP CENTER L message to show on the EICAS display. This causes the maintenance message 28-11042 to show on the MAT. A high fuel flow rate and low center pump pressure can occur when you jettison fuel from the center tank with minimal back pressure on the center pumps. A center pump low pressure switch with a higher low pressure set point can cause this condition. This situation has been observed on 777-200 airplanes during fuel jettison at 39,000 ft (11,887 m) with 6000 lb (2722 kg) of fuel in the center tank.

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C. Initial Evaluation



DO NOT CLOSE AN ELCU THAT OPENED DURING PUMP OPERATION UNTIL YOU CORRECT THE PROBLEM. A DAMAGED ELCU OR A PROBLEM WITH THE WIRES CAN CAUSE THE ELCU TO OPEN. THIS CONDITION CAN CAUSE AN EXPLOSION.

- (1) Make sure the airplane is not operating with low ground power.
NOTE: The left override/jettison pump is inhibited when operating with low ground power. Low ground power can occur when operating on a single source of power. The left engine generator or the APU can be used as a single source of power to operate the left override/jettison pump.
- (2) Make sure maintenance message 28-11034 does not show on the MAT.
- (3) If maintenance message 28-11034 shows on the MAT, then, do this task: ELCU (CTR L OVRD FUEL PUMP) in P100 is open - Fault Isolation, 28-22 TASK 876.
NOTE: The ELCU for the center left override pump is open. This could show a problem with the ELCU or the pump wiring.
- (4) If maintenance message 28-11034 does not show on the MAT, then continue.
- (5) If the MAT shows NOT ACTIVE:
 - (a) No further maintenance action is necessary if:
 - 1) EICAS message, FUEL PUMP CENTER L, does not show.
 - 2) The airplane was fueled to 6500 $\pm$ 3500 lb (2948 $\pm$ 1588 kg).
NOTE: If there is a low center tank fuel quantity, the center fuel pump inlets can uncover during taxi and/or takeoff. If the flight crew cycled the applicable pump on and off, it adequately pressurized the pump, extinguished the EICAS message, and changed the maintenance message state to NOT ACTIVE.
 - (b) If not, then continue.



DO NOT OPERATE A FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. IT CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE TANK WHICH WILL CAUSE A FIRE OR EXPLOSION. FIRES AND EXPLOSIONS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (6) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (7) Make sure there is a minimum of 5000 lb (2268 kg) of fuel in the center fuel tank for the procedure.
NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.
 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).

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- (8) Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (9) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (10) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (b) Do the Repair Confirmation at the end of this task.

NOTE: If the MAT shows NOT ACTIVE, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Make sure all of the switches for the center and main fuel tank pumps are in the OFF position, on the overhead panel (P5).
- (2) Push the CENTER PUMPS L switch to the ON position, on the overhead panel P5.
- (3) Listen to make sure the left center pump (M28103), installed on the rear spar in the left wheel well, operates.
- (4) Push the CENTER PUMPS L switch to the OFF position.
- (5) If the left center pump operates correctly, replace the pressure switch S28110.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- (a) Do the Repair Confirmation at the end of the task.

- (6) If the left center pump does not operate, replace the pump M28103.

These are the tasks:

Override/Jettison Pump Motor-Impeller - Removal, AMM TASK 28-22-06-000-801,

Override/Jettison Pump Housing - Removal, AMM TASK 28-22-06-000-802.

- (a) Push the CENTER PUMPS L switch to the ON position, on the overhead panel P5.
- (b) Listen to make sure the left center pump (M28103) operates.
- (c) Push the CENTER PUMPS L switch to the OFF position.
- (d) If the left center pump operates, then continue to the next step.
- (e) If the left center pump does not operate, do these steps:
- 1) Disconnect the electrical connector DM28103 from the left center pump (WDM 28-22-13).
 - 2) Push the CENTER PUMPS L switch to the ON position.
 - 3) Do an electrical check for 3 Phase 115V AC at connector DM28103.
 - 4) If 115V AC does not show, repair the wiring.
 - 5) Push the CENTER PUMPS L switch to the OFF position.

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- 6) Connect the electrical connector DM28103 to the left center pump (WDM 28-22-12).
- (f) Do the Repair Confirmation at the end of the task.
- (7) Do a check of the ELMS Signal Interface Unit 2 (SIU2) M24505, in the left power management panel (LPMP) P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Do the Repair Confirmation at the end of the task.
- (8) Do these steps to check the indication wiring for the pressure switch S28110 (WDM 28-22-13):
 - (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28110 and the Signal Interface Unit 2 (SIU2), M24505 in the Left Power Management Panel (LPMP) P110:
 - 1) Remove the Signal Interface Unit 2 (SIU2), M24505, from the LPMP P110. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Disconnect the electrical connector DS28110 from the left center pump pressure switch.
 - a) Do a check of the electrical connector DS28110 for damage or corrosion (SWPM 20-10-06).
 - b) Do a check of the electrical connector DS28110 for a ground.
 - c) If a ground is found at the electrical connector DS28110, replace the connector (SWPM 20-61-11).
 - 3) Do a continuity check between pin 2 on connector DS28110 and structure ground.
 - 4) Do this wiring check between these pins on connector DS28110 and connector DM24505 for the Signal Interface Unit 2 (SIU2), M24505, in the LPMP P110.

DS28110	DM24505
pin 3	pin 20

- (c) Repair the wiring.
- (d) Re-install the Signal Interface Unit 2 (SIU2), M24505, in the LPMP P110. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (e) Install the connector DS28110 to the pressure switch on the left center pump.
- (f) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (g) Do the Repair Confirmation at the end of the task.
- (9) Replace the LEFT OVRD PUMP CTRL relay, K28253, on the LEFT OVRD/JETTISON FUEL PUMP RELAYS panel, P301, in the main equipment center (WDM 28-22-13).

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- (a) Do the Repair Confirmation at the end of this task.

E. Repair Confirmation

- (1) Do these steps to verify that you corrected the fault:
 - (a) Push the CENTER PUMPS L switch to the ON position.
NOTE: Let the pump run for 15 seconds.
 - (b) Push the CENTER PUMPS L switch to the OFF position.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (e) If it is not necessary, close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

865. CTR R OVRD FUEL PUMP (PRESS SWITCH IS LOW, PUMP COMMANDED ON) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12027.

B. General

- (1) This task is for maintenance message: 28-12027.
- (2) Follow normal Fault Isolation Manual (FIM) procedures for any center pump low pressure maintenance message faults you see. However, be aware that the subject condition does not necessarily mean that there is a problem with the center pump(s) or related hardware.
- (3) For certain fuel configurations it is possible for the EICAS message FUEL PUMP CENTER R to appear during initial climb. The fuel inlet can be uncovered temporarily during the steepest part of the climb. This causes the maintenance message 28-12027 to show on the MAT. This situation has been observed in 777-200ER airplanes with approximately 5000 lb (2268 kg) in the center fuel tank when the pitch angle is more than approximately +12 degrees.
- (4) For certain fuel configurations it is possible for the center right pump low pressure light to come on, and FUEL PUMP CENTER R message to show on the EICAS display. This causes the maintenance message 28-12027 to show on the MAT. A high fuel flow rate and low center pump pressure can occur when you jettison fuel from the center tank with minimal back pressure on the center pumps. A center pump low pressure switch with a higher low pressure set point can cause this condition. This situation has been observed on 777-200 airplanes during fuel jettison at 39,000 ft (11,887 m) with 6000 lb (2722 kg) of fuel in the center tank.

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C. Initial Evaluation



WARNING

DO NOT CLOSE AN ELCU THAT OPENED DURING PUMP OPERATION UNTIL YOU CORRECT THE PROBLEM. A DAMAGED ELCU OR A PROBLEM WITH THE WIRES CAN CAUSE THE ELCU TO OPEN. THIS CONDITION CAN CAUSE AN EXPLOSION.

- (1) Make sure the airplane is not operating with low ground power.

NOTE: The right override/jettison pump is inhibited when operating with low ground power. Low ground power can occur when operating on a single source of power. The right engine generator can be used as a single source of power to operate the right override/jettison pump.

- (2) Make sure maintenance message 28-12037 does not show on the MAT.
- (3) If maintenance message 28-12037 shows on the MAT, then, do this task: ELCU (CTR R OVRD FUEL PUMP) in P200 is open - Fault Isolation, 28-22 TASK 877.

NOTE: The ELCU for the center right override pump is open. This could show a problem with the ELCU or the pump wiring.

- (4) If maintenance message 28-12037 does not show on the MAT, then continue.
- (5) If the MAT shows NOT ACTIVE:

- (a) No further maintenance action is necessary if:

- 1) EICAS message, FUEL PUMP CENTER R, does not show.
- 2) The airplane was fueled to 6500 ±3500 lb (2948 ±1588 kg).

NOTE: If there is a low center tank fuel quantity, the center fuel pump inlets can uncover during taxi and/or takeoff. If the flight crew cycled the applicable pump on and off, it adequately pressurized the pump, extinguished the EICAS message, and changed the maintenance message state to NOT ACTIVE.

- (b) If not, then continue.



WARNING

DO NOT OPERATE A FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. IT CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE TANK WHICH WILL CAUSE A FIRE OR EXPLOSION. FIRES AND EXPLOSIONS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (6) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (7) Make sure there is a minimum of 5000 lb (2268 kg) of fuel in the center fuel tank for this procedure.

NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.

- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).

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- (8) Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (9) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (10) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (b) Do the Repair Confirmation at the end of this task.

NOTE: If the MAT shows NOT ACTIVE, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Make sure all of the switches for the center and main fuel tank pumps are in the OFF position, on the overhead panel (P5).
- (2) Push the CENTER PUMPS R switch to the ON position, on the overhead panel P5.
- (3) Listen to make sure the right center pump (M28203), installed on the rear spar in the right wheel well, operates.
- (4) Push the CENTER PUMPS R switch to the OFF position.
- (5) If the right center pump operates correctly, replace the pressure switch S28210.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- (a) Do the Repair Confirmation at the end of the task.

- (6) If the right center pump does not operate, replace the pump M28203.

These are the tasks:

Override/Jettison Pump Motor-Impeller - Removal, AMM TASK 28-22-06-000-801,

Override/Jettison Pump Housing - Removal, AMM TASK 28-22-06-000-802.

- (a) Push the CENTER PUMPS R switch to the ON position, on the overhead panel P5.

- (b) Listen to make sure the right center pump (M28203), operates.

- (c) Push the CENTER PUMPS R switch to the OFF position.

- (d) If the right center pump operates, then continue to the next step.

- (e) If the right center pump does not operate, do these steps:

- 1) Disconnect the electrical connector DM28203 from the right center pump (WDM 28-22-23).
- 2) Push the CENTER PUMPS R switch to the ON position.
- 3) Do an electrical check for 3 Phase 115V AC at connector DM28203.
- 4) If 115V AC does not show, repair the wiring.
- 5) Push the CENTER PUMPS R switch to the OFF position.

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- 6) Connect the electrical connector DM28203 to the right center pump (WDM 28-22-23).
- (f) Do the Repair Confirmation at the end of the task.
- (7) Do a check of the Signal Interface Unit 1 (SIU1), M24508, in the right power management panel (RPMP) P210.
- This is the task:
- Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.
- (a) Do the Repair Confirmation at the end of the task.
- (8) Do these steps to check the indication wiring for the pressure switch S28210 (WDM 28-22-23):
- (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28210 and the Signal Interface Unit 1 (SIU1), M24508, in the right power management panel (RPMP) P210:
- 1) Remove the Signal Interface Unit 1 (SIU1), M24508, RPMP P210. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Disconnect the electrical connector DS28210 from the right center pump pressure switch.
 - a) Do a check of the electrical connector DS28210 for damage or corrosion (SWPM 20-10-06).
 - b) Do a check of the electrical connector DS28210 for a ground.
 - c) If a ground is found at the electrical connector DS28210, replace the connector (SWPM 20-61-11).
 - 3) Do a continuity check between pin 2 on connector DS28210 and structure ground.
 - 4) Do this wiring check between these pins on connector DS28210 and connector DM24508C for the Signal Interface Unit 1 (SIU1), M24508, in the right power management panel (RPMP) P210.

DS28210	DM24508C
pin 3	pin 18

- (c) Repair the wiring.
- (d) Install the connector DS28210 to the pressure switch on the right center pump.
- (e) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (f) Do the Repair Confirmation at the end of the task.
- (9) Replace the RIGHT OVRD PUMP CTRL relay, K28254, on the RIGHT OVRD/JETTISON FUEL PUMP RELAYS panel, P302, in the main equipment center (WDM 28-22-23).
- (a) Do the Repair Confirmation at the end of this task.

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E. Repair Confirmation

- (1) Do these steps to verify that you corrected the fault:
 - (a) Push the CENTER PUMPS R switch to the ON position.
NOTE: Let the pump run for 15 seconds.
 - (b) Push the CENTER PUMPS R switch to the OFF position.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (e) If it is not necessary, close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

866. CTR L OVRD FUEL PUMP (PRESS SWITCH IS HIGH, PUMP COMMANDED OFF) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11019.

B. Initial Evaluation



DO NOT OPERATE A FUEL PUMP IF THE LOW PRESSURE LIGHT COMES ON AND STAYS ON. THIS CONDITION CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE FUEL TANK. A FIRE OR AN EXPLOSION CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is a minimum of 5000 lb (2268 kg) of fuel in the center fuel tank for the procedure.
NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.
 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (b) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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NOTE: You must open the refueling station door to operate the center fuel pumps.

- (c) Push the CENTER PUMPS L switch to the ON position, on the overhead panel P5.

NOTE: Let the pump run for 15 seconds.

- (d) Push the CENTER PUMPS L switch to the OFF position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check the pressure switch:
 - (a) Get access to the FUEL MANAGEMENT maintenance page on the lower EICAS display.
 - (b) Disconnect the electrical connector DS28110 from the left center pump pressure switch (AMM TASK 28-42-01-000-801).
 - (c) If the STATUS indication on the EICAS maintenance page shows NO PRESS for the L OVRD/JETT PUMP, do a check of the electronic load management system (ELMS) Signal Interface Unit (SIU) 2, M24505, in the left power management panel (LPMP) P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Wait 5 minutes.

NOTE: It can take up to 5 minutes after there is power to the ELMS panel for the maintenance message to show.

- 2) Connect the electrical connector DS28110 to the fuel pump pressure switch.
- 3) Push the CENTER PUMPS L switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- 4) Push the CENTER PUMPS L switch to the OFF position.
- 5) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- 6) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue

- (d) If the STATUS indication on the EICAS maintenance page shows PRESS for the L OVRD/JETT PUMP, replace the pressure switch.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- 1) Connect the electrical connector DS28110 to the fuel pump pressure switch.
- 2) Push the CENTER PUMPS L switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- 3) Push the CENTER PUMPS L switch to the OFF position.
- 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

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- (2) Do these steps to check the indication wiring for the pressure switch S28110 (WDM 28-22-13):
- (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (b) Disconnect the electrical connector DS28110 from the left center pump pressure switch.
- (c) Remove the electronic load management system (ELMS) Signal Interface Unit 2, (SIU2) M24505, in the left power management panel (LPMP) P110 (AMM TASK 24-09-00-000-814-002).
- 1) Do this wiring check between these pins on connector DS28110 and connector DM24505C for the SIU2, M24505 in the LPMP P110.

DS28110	DM24505C
pin 3	pin 20

- (d) Repair the wiring.
- (e) Re-install the electronic load management system (ELMS) Signal Interface Unit 2, (SIU2) M24505, in the left power management panel (LPMP) P110 (AMM TASK 24-09-00-400-810-002).
- (f) Install the connector DS28110 to the pressure switch on the left center pump.
- (g) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (h) Push the CENTER PUMPS L switch to the ON position.
- NOTE: Let the pump run for 15 seconds.
- (i) Push the CENTER PUMPS L switch to the OFF position.
- (j) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— **END OF TASK** —————

867. CTR R OVRD FUEL PUMP (PRESS SWITCH IS HIGH, PUMP COMMANDED OFF) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12028.

B. Initial Evaluation

 WARNING	DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.

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- (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is a minimum of 5000 LBS (2300 KGS) of fuel in the center fuel tank for the procedure.

NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.

- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:

- (a) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (b) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

NOTE: You must open the refueling station door to operate the center fuel pumps.

- (c) Push the CENTER PUMPS R switch to the ON position, on the overhead panel P5.

NOTE: Let the pump run for 15 seconds.

- (d) Push the CENTER PUMPS R switch to the OFF position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check the pressure switch:
 - (a) Get access to the FUEL MANAGEMENT maintenance page on the lower EICAS display.
 - (b) Disconnect the electrical connector DS28210 from the right center pump pressure switch (AMM TASK 28-42-01-000-801).
 - (c) If the STATUS indication on the EICAS maintenance page shows NO PRESS for the R OVRD/JETT PUMP, do a check of the electronic load management system (ELMS) Signal Interface Unit 1 (SIU1), M24508, in the right power management panel (RPMP) P210.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Connect the electrical connector DS28210 to the fuel pump pressure switch.
- 2) Push the CENTER PUMPS R switch to the ON position.

NOTE: Let the pump run for 15 seconds.
- 3) Push the CENTER PUMPS R switch to the OFF position.
- 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

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- 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (d) If the STATUS indication on the EICAS maintenance page shows PRESS for the R OVRD/JETT PUMP, replace the pressure switch S28210.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- 1) Connect the electrical connector DS28210 to the fuel pump pressure switch.
- 2) Push the CENTER PUMPS R switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- 3) Push the CENTER PUMPS R switch to the OFF position.
- 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Do these steps to check the indication wiring for the pressure switch S28210 (WDM 28-22-23):

- (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28210 and the Signal Interface Unit 1 (SIU1), M24508, in the right power management panel (RPMP) P210:

- 1) Remove the the Signal Interface Unit 1 (SIU1), M24508, from the RPMP P210. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 2) Disconnect the electrical connector DS28210 from the right center pump pressure switch.
- 3) Do this wiring check between these pins on connector DS28210 and connector DM24508C for the Signal Interface Unit 1 (SIU1), M24508, in the RPMP P210.

DS28210	DM24508C
pin 3	pin 18

- (c) Repair the wiring.
- (d) Install the Signal Interface Unit 1 (SIU1), M24508, in the right power management panel (RPMP) P210. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (e) Install the connector DS28210 on the pressure switch on the right center pump.
- (f) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

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- (g) Push the CENTER PUMPS R switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (h) Push the CENTER PUMPS R switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— END OF TASK —————

868. L AFT BOOST PUMP CONTROL RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11043.

B. Initial Evaluation

- (1) Do this task: L AFT FUEL BST PMP GFI CTRL RLY Problems - Fault Isolation, 28-22 TASK 898.

————— END OF TASK —————

869. R AFT BOOST PUMP CONTROL RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12032.

B. Initial Evaluation

- (1) Do this task: R AFT FUEL BST PMP GFI CTRL RLY Problems - Fault Isolation, 28-22 TASK 899.

————— END OF TASK —————

870. L AFT FUEL BOOST PUMP (PRESS SWITCH IS LOW, PUMP COMMANDED ON) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11036.

B. Initial Evaluation



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Do a check of this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP

- (3) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker is open, then, do this task: Left Main Tank, Aft Boost Pump Circuit Breaker Open - Fault Isolation, 28-22 TASK 857.

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- (4) If the L AFT FUEL BOOST PUMP (110E2) circuit breaker is closed, then continue.
- (5) Make sure there is a minimum of 1000 LBS (500 KGS) of fuel in the left main fuel tank.
NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (6) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (7) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- (b) Push the L PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (c) Push the L PUMPS AFT switch to the OFF position.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure all of the switches for the center and main fuel tank pumps are in the OFF position, on the overhead panel (P5).
- (2) Push the L PUMPS AFT switch to the ON position, on the overhead panel P5.
- (3) Listen to make sure the left aft boost pump (M28102), installed on the rear spar of the left center fuel tank, operates.
- (4) Push the L PUMPS AFT switch to the OFF position.
- (5) If the left aft boost pump operates correctly, replace the pressure switch S28137.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- (a) Push the L PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (b) Push the L PUMPS AFT switch to the OFF position.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (6) If the left aft fuel boost pump does not operate, replace the boost pump M28102.

These are the tasks:

Boost Pump Motor-Impeller - Removal, AMM TASK 28-22-05-000-801,

Boost Pump Motor-Impeller - Installation, AMM TASK 28-22-05-400-801.

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- (a) Push the L PUMPS AFT switch to the ON position, on the overhead panel P5.
 - (b) Listen to make sure the left aft boost pump (M28102), installed on the rear spar of the left center fuel tank, operates.
 - (c) Push the L PUMPS AFT switch to the OFF position.
 - (d) If the left aft fuel boost pump operates, then continue to the next step.
 - (e) If the left aft fuel boost pump does not operate, do these steps:
 - 1) Disconnect the electrical connector DM28102 from the fuel pump (WDM 28-22-12).
 - 2) Push the L PUMPS AFT switch to the ON position.
 - 3) Do an electrical check for 3 Phase 115V AC at connector DM28102.
 - 4) If 115V AC does not show, repair the wiring.
 - 5) Push the L PUMPS AFT switch to the OFF position.
 - 6) Connect the electrical connector DM28102 to the fuel pump (WDM 28-22-12).
 - (f) Push the L PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
 - (g) Push the L PUMPS AFT switch to the OFF position.
 - (h) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - (i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (7) Do a check of the ELMS Signal Interface Unit 2 (SIU2) in the left power management panel (LPMP) P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Push the L PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
 - (b) Push the L PUMPS AFT switch to the OFF position.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (8) Do these steps to check the wiring:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28137 and the Signal Interface Unit 2 (SIU2), M24505 in the LPMP P110 (WDM 28-22-12):
 - 1) Remove the SIU2, M24505, from the LPMP P110. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Disconnect the electrical connector DS28137 from the fuel pump pressure switch.
 - a) Do a check of the electrical connector DS28137 for damage or corrosion (SWPM 20-10-06).

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- b) Do a check of the electrical connector DS28137 for a ground.
- c) If a ground is found at the electrical connector DS28137, replace the connector (SWPM 20-61-11).
- 3) Do a wiring check to make sure there is continuity between pin 2 on connector DS28137 and structure ground.
- 4) Do this wiring check between the these pins on connector DS28137 and connector DM24505C for the SIU2, M24505 in the LPMP P110 (WDM 28-22-12).

DS28137	DM24505C
pin 3	pin 17

- (c) Do a check of the internal wiring between SIU2, M24505 and the L AFT FUEL BOOST PUMP CTRL relay, K28123 in the LPMP P110 (WDM 28-22-12).
- (d) Repair the wiring.
- (e) Install the Signal Interface Unit 2 (SIU2), M24505, in the LPMP P110. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (f) Install the connector DS28137 on the pressure switch on the fuel pump.
- (g) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- (h) Push the L PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (i) Push the L PUMPS AFT switch to the OFF position.
- (j) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— **END OF TASK** —————

871. **R AFT FUEL BOOST PUMP (PRESS SWITCH IS LOW, PUMP COMMANDED ON) - Fault Isolation**

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12022.

B. Initial Evaluation

 WARNING	DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.

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- (2) Do a check of this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP

- (3) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker is open, then, do this task: Right Main Tank, Aft Boost Pump Circuit Breaker Open - Fault Isolation, 28-22 TASK 856.
- (4) If the R AFT FUEL BOOST PUMP (210E27) circuit breaker is closed, then continue.
- (5) Make sure there is a minimum of 1000 LBS (500 KGS) of fuel in the right main fuel tank.
NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (6) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (7) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- (b) Push the R PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (c) Push the R PUMPS AFT switch to the OFF position.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure all of the switches for the center and main fuel tank pumps are in the OFF position, on the overhead panel (P5).
- (2) Push the R PUMPS AFT switch to the ON position, on the overhead panel P5.
- (3) Listen to make sure the right aft boost pump (M28202), installed on the rear spar of the right center fuel tank, operates.
- (4) Push the R PUMPS AFT switch to the OFF position.
- (5) If the right aft boost pump operates correctly, replace the pressure switch S28237.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- (a) Push the R PUMPS AFT switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- (b) Push the R PUMPS AFT switch to the OFF position.

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- (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (6) If the right aft fuel boost pump does not operate, replace the boost pump M28202.

These are the tasks:

Boost Pump Motor-Impeller - Removal, AMM TASK 28-22-05-000-801,

Boost Pump Motor-Impeller - Installation, AMM TASK 28-22-05-400-801.

- (a) Push the R PUMPS AFT switch to the ON position, on the overhead panel P5.
- (b) Listen to make sure the right aft boost pump (M28202), installed on the rear spar of the right center fuel tank, operates.
- (c) Push the R PUMPS AFT switch to the OFF position.
- (d) If the right aft fuel boost pump operates, then continue to the next step.
- (e) If the right aft fuel boost pump does not operate, do these steps:
 - 1) Disconnect the electrical connector DM28202 from the fuel pump (WDM 28-22-12).
 - 2) Push the R PUMPS AFT switch to the ON position.
 - 3) Do an electrical check for 3 Phase 115V AC at connector DM28202.
 - 4) If 115V AC does not show, repair the wiring.
 - 5) Push the R PUMPS AFT switch to the OFF position.
 - 6) Connect the electrical connector DM28202 to the fuel pump (WDM 28-22-12).
- (f) Push the R PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (g) Push the R PUMPS AFT switch to the OFF position.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (7) Do a check of the ELMS Signal Interface Unit 2, M24509, in the right power management panel (RPMP) P210.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Push the R PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (b) Push the R PUMPS AFT switch to the OFF position.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (8) Do these steps to check the wiring:
 - (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28237 and the SIU2, M24409 in the RPMP P210 (WDM 28-22-22):
- 1) Remove the Signal Interface Unit 2 (SIU2), M24409, from the RPMP P210. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Disconnect the electrical connector DS28237 from the fuel pump pressure switch.
 - a) Do a check of the electrical connector DS28237 for damage or corrosion (SWPM 20-10-06).
 - b) Do a check of the electrical connector DS28237 for a ground.
 - c) If a ground is found at the electrical connector DS28237, replace the connector (SWPM 20-61-11).
 - 3) Do a wiring check to make sure there is continuity between pin 2 on connector DS28237 and structure ground.
 - 4) Do this wiring check between these pins on connector DS28237 and connector DM24509C for the Signal Interface Unit 2, (SIU2), M24409 in the RPMP P210 (WDM 28-22-22).

DS28237	DM24509C
pin 3	pin 15

- (c) Repair the wiring.
- (d) Install the Signal Interface Unit 2 (SIU2), M24509, in the RPMP P210. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (e) Install the connector DS28237 to the pressure switch on the fuel pump.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- (g) Push the R PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (h) Push the R PUMPS AFT switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— **END OF TASK** —————

872. L AFT FUEL BOOST PUMP (PRESS SWITCH IS HIGH, PUMP COMMANDED OFF) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11037.

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B. Initial Evaluation



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is a minimum of 1000 LBS (500 KGS) of fuel in the left main fuel tank.
NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- (b) Push the L PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (c) Push the L PUMPS AFT switch to the OFF position.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check the pressure switch:
 - (a) Get access to the FUEL MANAGEMENT maintenance page on the lower EICAS display.
 - (b) Disconnect the electrical connector DS28137 from the fuel pump pressure switch (AMM TASK 28-42-01-000-801).
 - (c) If the STATUS indication on the EICAS maintenance page shows NO PRESS for the L AFT MAIN PUMP, do a check of the electronic load management system (ELMS) Signal Interface Unit 2 (SIU2), M24505, in the left power management panel (LPMP) P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Connect the electrical connector DS28137 to the fuel pump pressure switch.
- 2) Push the L PUMPS AFT switch to the ON position.

NOTE: Let the pump run for 15 seconds.

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- 3) Push the L PUMPS AFT switch to the OFF position.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (d) If the STATUS indication on the EICAS maintenance page shows PRESS for the L AFT MAIN PUMP, replace the pressure switch.
- These are the tasks:
- Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,
Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.
- 1) Connect the electrical connector DS28137 to the fuel pump pressure switch.
 - 2) Push the L PUMPS AFT switch to the ON position.
- NOTE: Let the pump run for 15 seconds.
- 3) Push the L PUMPS AFT switch to the OFF position.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do these steps to check the wiring:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28137 and the Signal Interface Unit 2 (SIU2), M24402 in the LPMP P110 (WDM 28-22-12):
- 1) Remove the SIU2, M24505, from the LPMP P110. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Disconnect the electrical connector DS28137 from the fuel pump pressure switch.
 - 3) Do a wiring check to make sure there is continuity between pin 2 on connector DS28137 and structure ground.
 - 4) Do this wiring check between the these pins on connector DS28137 and connector DM24505C for the SIU2, M24505 in the LPMP P110 (WDM 28-22-12).

DS28137	DM24505C
pin 3	pin 17

- (c) Do a check of the internal wiring between SIU2, M24505 and the L AFT FUEL BOOST PUMP CTRL relay, K28123 in the LPMP P110 (WDM 28-22-12).
- (d) Repair the wiring.
- (e) Install the SIU2, M24505, in the LPMP P110. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (f) Install the connector DS28137 on the pressure switch on the fuel pump.

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

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- (h) Push the L PUMPS AFT switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- (i) Push the L PUMPS AFT switch to the OFF position.

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

————— **END OF TASK** —————

873. R AFT FUEL BOOST PUMP (PRESS SWITCH IS HIGH, PUMP COMMANDED OFF) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12023.

B. Initial Evaluation



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is a minimum of 1000 LBS (500 KGS) of fuel in the right main fuel tank.
- NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- (b) Push the R PUMPS AFT switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- (c) Push the R PUMPS AFT switch to the OFF position.

- 1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.

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- (d) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check the pressure switch:

- (a) Get access to the FUEL MANAGEMENT maintenance page on the lower EICAS display.
- (b) Disconnect the electrical connector DS28237 from the fuel pump pressure switch (AMM TASK 28-42-01-000-801).
- (c) If the STATUS indication on the EICAS maintenance page shows NO PRESS for the R AFT MAIN PUMP, do a check of the electronic load management system (ELMS), in the right power management panel (RPMP) P210.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Connect the electrical connector DS28237 to the fuel pump pressure switch.
- 2) Push the R PUMPS AFT switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- 3) Push the R PUMPS AFT switch to the OFF position.
- 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (d) If the STATUS indication on the EICAS maintenance page shows PRESS for the R AFT MAIN PUMP, replace the pressure switch.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- 1) Connect the electrical connector DS28237 to the fuel pump pressure switch.
 - 2) Push the R PUMPS AFT switch to the ON position.
- NOTE: Let the pump run for 15 seconds.
- 3) Push the R PUMPS AFT switch to the OFF position.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Do these steps to check the wiring:

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

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28237 and the Signal Interface Unit 2 (SIU2), M24509 in the RPMP P210 (WDM 28-22-22):

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- 1) Remove the Signal Interface Unit 2 (SIU2), M24509, from the RPMP P210. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 2) Disconnect the electrical connector DS28237 from the fuel pump pressure switch.
- 3) Do a wiring check to make sure there is continuity between pin 2 on connector DS28237 and structure ground.
- 4) Do this wiring check between the these pins on connector DS28237 and connector DM24509C for the SIU2, M24509, in the RPMP P210 (WDM 28-22-22).

DS28237	DM24509C
pin 3	pin 15

- (c) Repair the wiring.
- (d) Install the Signal Interface Unit 2 (SIU2), M24509, in the RPMP P210. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (e) Install the connector DS28237 to the pressure switch on the fuel pump.
- (f) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- (g) Push the R PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (h) Push the R PUMPS AFT switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— **END OF TASK** —————

874. LEFT CENTER FUEL PUMP INHIBIT RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11045.

B. Initial Evaluation

- (1) Do these steps to configure the airplane:
 - (a) Make sure the airplane is in the ground mode (AMM TASK 32-09-00-860-801).
 - (b) Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
 - (c) Make sure the JETTISON ARM switch, on the overhead panel P5, is in the OFF position.
 - (d) Make sure the APU is not on (AMM TASK 49-11-00-860-805).
 - (e) Make sure the engines are not on.
 - (f) Make sure there is not more than one external power source connected to the airplane (AMM TASK 24-22-00-860-806).

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- (2) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (b) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the L CENTER PUMP INHIBIT Relay K28130, installed in the left power management panel (LPMP) P110 (WDM 28-22-13).
 - (a) Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
 - (b) Wait 20 seconds.
 - (c) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do a check of the ELMS Signal Interface Unit 2 (SIU2) M24505, in the LPMP P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

 - (a) Wait 5 minutes.

NOTE: It can take up to 5 minutes after there is power to the ELMS panel for the maintenance message to show.
 - (b) Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
 - (c) Wait 20 seconds.

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- (d) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (e) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (f) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do these steps to do a check of the relay wiring (WDM 28-22-13):

- (a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (b) Remove the L CENTER PUMP INHIBIT RELAY K28130, from the LPMP P110.
- (c) Remove the Signal Interface Unit 2 (SIU2), M24505, from the LPMP P110 (AMM TASK 24-09-00-000-814-002).
- (d) Do these steps to do a check of the relay control wiring:

- 1) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- 2) Make sure there is continuity between pin A2 on connector DK28130 and structure ground.
- 3) Make sure there is 28V DC at pin B2 on connector DK28130.
- 4) Make sure there is 28V DC at pin X1 on connector DK28130.
- 5) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- 6) Do a wiring check between these pins of connector DM24505B on the SIU2, M24505 and the relay connector DK28130, on the LPMP P110:

DM24505B	DK28130
pin 4	pin X2

- (e) Do these steps to check the relay indication wiring:

- 1) Do a wiring check between these pins of connector DM24505C on the SIU2, M24505 and the relay connector DK28130, on the LPMP P110:

DM24505C	DK28130
pin 19	pin A1

- (f) Repair the wiring problems that you find.

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- (g) Install the Signal Interface Unit 2 (SIU2), M24505 in the LPMP P110 (AMM TASK 24-09-00-400-810-002).
- (h) Install the L CENTER PUMP INHIBIT RELAY K28130, in the LPMP P110.
- (i) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (j) Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (k) Wait 20 seconds.

- (l) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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

————— END OF TASK —————

875. RIGHT CENTER FUEL PUMP INHIBIT RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12035.

B. Initial Evaluation

- (1) Do these steps to configure the airplane:
 - (a) Make sure the airplane is in the ground mode (AMM TASK 32-09-00-860-801).
 - (b) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
 - (c) Make sure the JETTISON ARM switch, on the overhead panel P5, is in the OFF position.
 - (d) Make sure the APU is not on (AMM TASK 49-11-00-860-805).
 - (e) Make sure the engines are not on.
 - (f) Make sure there is not more than one external power source connected to the airplane (AMM TASK 24-22-00-860-806).
- (2) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

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- (b) Close this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the R CENTER PUMP INHIBIT Relay K28230, installed in the right power management panel (RPMP) P210 (WDM 28-22-23).

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (b) Wait 20 seconds.

- (c) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Do a check of the ELMS Signal Interface Unit 1 (SIU1), M24508, in the RPMP P210.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (b) Wait 20 seconds.

- (c) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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

- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do these steps to check the relay wiring (WDM 28-22-13):

- (a) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (b) Remove the R CENTER PUMP INHIBIT RELAY K28230, from the RPMP P210.

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- (c) Remove the Signal Interface Unit 1 (SIU1), M24508, from the RPMP P210. To do this, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- (d) Do these steps to check the relay control wiring:

- 1) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- 2) Make sure there is continuity between pin A2 on connector DK28230 and structure ground.
- 3) Make sure there is 28V DC at pin B2 on connector DK28230.
- 4) Make sure there is 28V DC at pin X1 on connector DK28230.
- 5) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- 6) Do a wiring check between these pins of connector DM24508B on the SIU1, M24508 and the relay connector DK28230, on the RPMP P210:

DM24508B	DK28230
pin 3	pin X2

- (e) Do these steps to check the relay indication wiring:

- 1) Do a wiring check between these pins of connector DM24508C on the SIU1, M24508 and the relay connector DK28230, on the RPMP P210:

DM24508C	DK28230
pin 17	pin A1

- (f) Repair the wiring problems that you find.
- (g) Install the Signal Interface Unit 1 (SIU1), M24508 in the RPMP P210. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (h) Install the R CENTER PUMP INHIBIT RELAY K28230, in the RPMP P210.
- (i) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (j) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (k) Wait 20 seconds.

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- (l) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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

— END OF TASK —

876. ELCU (CTR L OVRD FUEL PUMP) in P100 is open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11034.

B. Description



WARNING

DO NOT CLOSE AN ELCU THAT OPENED DURING PUMP OPERATION UNTIL YOU CORRECT THE PROBLEM. A DAMAGED ELCU OR A PROBLEM WITH THE WIRES CAN CAUSE THE ELCU TO OPEN. THIS CONDITION CAN CAUSE AN EXPLOSION.

28-AWL-17: CDCCL

- (1) Do not reset this ELCU before you do this task. This problem can be caused by a short circuit in the pump wiring or a damaged ELCU.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

C. Initial Evaluation



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is a minimum of 52,300 lb (23,723 kg) of fuel in the center fuel tank for the procedure.

NOTE: This will cover the boost pump with fuel.

D. Fault Isolation Procedure



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Make sure the landing gear downlocks are installed (AMM TASK 32-00-30-480-801).

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OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (3) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

NOTE: The refueling station door must be open to operate the center fuel pumps.

- (4) Do these steps to replace the electronic load control unit (ELCU) (WDM 28-22-13):
 - (a) Make sure all electrical power is off at the Electrical Control Panel, on the P5 Overhead Panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.

- (b) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (c) Replace electronic load control unit (ELCU) M28109, in the left power panel (LPP) P100.
- (5) Do these steps to do a check of the wiring for the left center override pump:
 - (a) Get access to the left center override fuel pump (AMM TASK 28-22-06-000-801).
 - (b) Examine the left center override fuel pump and the area around it for signs of fuel leakage.
 - 1) If there are signs of fuel leakage, find the source of the fuel leakage and repair it.
 - (c) Disconnect the electrical connector DM28103 from the fuel pump (WDM 28-22-13).
 - (d) Examine the airplane and pump sides of the electrical connector DM28103 for damage.
 - 1) Repair all the damage that you find.
 - (e) Make sure the electrical connector DM28103 is disconnected.

28-AWL-17: CDCCL

- (f) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the left center override pump, M28103.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

- 1) If the left center override pump is okay, then continue.
- (g) Supply electrical power to the left main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.

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- (h) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (i) Make sure the MAT shows NOT ACTIVE for the maintenance message (or the message does not show).

NOTE: This shows the ELCU is closed.

- (j) Push the CENTER PUMPS L switch to the ON position.
- (k) After five minutes, push the CENTER PUMPS L switch to the OFF position.
- (l) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then do these steps:
- 1) Connect the electrical connector DM28103 to the fuel pump (WDM 28-22-13).
 - 2) Put the CENTER PUMPS L switch-light, on the P5 Overhead Panel, to the ON position.
 - 3) Make sure that the amber PRESS light goes off, for the CENTER PUMPS L switch-light on the P5 Overhead Panel.
 - 4) After 5 minutes, put the CENTER PUMPS L switch-light, on the P5 Overhead Panel, to the OFF position.
 - 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 6) If the MAT shows ACTIVE or LATCHED, then do these steps:
 - a) Replace the center left override fuel pump, M28103.

These are the tasks:

Override/Jettison Pump Motor-Impeller - Removal, AMM
TASK 28-22-06-000-801,

Override/Jettison Pump Motor-Impeller - Installation, AMM
TASK 28-22-06-400-801.

- b) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- c) Put the CENTER PUMPS L switch-light, on the P5 Overhead Panel, to the ON position.
 - d) Make sure that the amber PRESS light goes off, for the CENTER PUMPS L switch-light on the P5 Overhead Panel.
 - e) After 5 minutes, put the CENTER PUMPS L switch-light, on the P5 Overhead Panel, to the OFF position.
 - f) If the MAT shows NOT ACTIVE for the maintenance message (or if the fault does not show), then you corrected the fault.
- (m) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (6) Replace the Power Panel Controller, M24500 in the Power Panel P100.

These are the tasks:

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Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,

Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.

- (a) Push the CENTER PUMPS L switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- (b) Push the CENTER PUMPS L switch to the OFF position.

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

- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (7) Do these steps to do a check of the wiring from the ELCU to the override pump:

- (a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (b) Do a wiring check between these pins of connector DM28103 at the center left override fuel pump M28103, and DM28109 on the ELCU for the CTR L OVRD FUEL PUMP (M28109) (SSM 28-22-13) (WDM 28-22-13):

<u>DM28103</u>	<u>DM28109</u>
pin B	pin A2
pin D	pin B2
pin F	pin C2

- 1) Find the problem and repair the wiring.

- (c) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

NOTE: This step closes the ELCU again.

- (d) Make sure the MAT does not show ACTIVE or LATCHED for the maintenance message.

NOTE: This is a check that the ELCU is closed.

- (e) Put the CENTER PUMPS L switch-light, on the P5 Overhead Panel, to the ON position.

- (f) After 5 minutes, put the CENTER PUMPS L switch-light, on the P5 Overhead Panel, to the OFF position.

- (g) Make sure the MAT does not show ACTIVE or LATCHED for the maintenance message.

NOTE: This is a check that the ELCU is still closed.

- (h) Do an electrical check for 3 Phase 115V AC at connector DM28103.

- 1) If 115V AC does not show, repair the wiring.

- (i) Connect the electrical connector DM28103 to the left override fuel pump (WDM 28-22-13).

- (j) Put the CENTER PUMPS L switch-light, on the P5 Overhead Panel, to the ON position.

- (k) Make sure that the amber PRESS light goes off, for the CENTER PUMPS L switch-light on the P5 Overhead Panel.

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- (l) After 5 minutes, put the CENTER PUMPS L switch-light, on the P5 Overhead Panel, to the OFF position.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), then you corrected the fault.
 - 2) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (8) Do these steps to do a check of the internal wiring in the P100 panel:
 - (a) Do a check of the internal wiring in the P100 panel from connector DM28109 on M28109 to connector DM24500 on the Power Panel Controller, M25400.
 - (b) Repair the problems that you find.
 - (c) Push the CENTER PUMPS L switch to the ON position.

NOTE: Let the pump run for 15 seconds.
 - (d) Push the CENTER PUMPS L switch to the OFF position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

— END OF TASK —

877. ELCU (CTR R OVRD FUEL PUMP) in P200 is open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12037.

B. Description



DO NOT CLOSE AN ELCU THAT OPENED DURING PUMP OPERATION UNTIL YOU CORRECT THE PROBLEM. A DAMAGED ELCU OR A PROBLEM WITH THE WIRES CAN CAUSE THE ELCU TO OPEN. THIS CONDITION CAN CAUSE AN EXPLOSION.

28-AWL-17: CDCCL

- (1) Do not reset this ELCU before you do this task. This problem can be caused by a short circuit in the pump wiring or a damaged ELCU.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

C. Initial Evaluation



DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.

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- (2) Make sure there is a minimum of 5000 lb (2268 kg) of fuel in the center fuel tank for the procedure.

NOTE: This fuel quantity will prevent dry operation of the center fuel pump.

- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).

D. Fault Isolation Procedure



WARNING

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Make sure the landing gear downlocks are installed (AMM TASK 32-00-30-480-801).



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.

- (3) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

NOTE: The refueling station door must be open to operate the center fuel pumps.

- (4) Do these steps to replace the electronic load control unit (ELCU) (WDM 28-22-23):

- (a) Make sure all electrical power is off at the Electrical Control Panel, on the P5 Overhead Panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.

- (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (c) Replace electronic load control unit (ELCU) M28213, in the right power panel (LPP) P200.

- (5) Do these steps to do a check of the wiring for the right center override pump:

- (a) Get access to the right center override fuel pump (AMM TASK 28-22-06-000-801).

- (b) Examine the right center override fuel pump and the area around it for signs of fuel leakage.

- 1) If there are signs of fuel leakage, find the source of the fuel leakage and repair it.

- (c) Disconnect the electrical connector DM28203 from the fuel pump (WDM 28-22-23).

- (d) Examine the airplane and pump sides of the electrical connector DM28203 for damage.

- (e) Repair all the damage that you find.

- (f) Make sure the electrical connector DM28203 is disconnected.

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28-AWL-17: CDCCL

- (g) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the right center override pump, M28203.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

- 1) If the right center override pump is okay, then continue.
- (h) Supply electrical power to the right main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (i) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (j) Make sure the MAT shows NOT ACTIVE for the maintenance message (or the message does not show).

NOTE: This shows the ELCU is closed.

- (k) Push the CENTER PUMPS R switch to the ON position.
- (l) After five minutes, push the CENTER PUMPS R switch to the OFF position.
- (m) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then do these steps:
- 1) Connect the electrical connector DM28203 to the fuel pump (WDM 28-22-13).
 - 2) Put the CENTER PUMPS R switch-light, on the P5 Overhead Panel, to the ON position.
 - 3) Make sure that the amber PRESS light goes off, for the CENTER PUMPS R switch-light on the P5 Overhead Panel.
 - 4) After 5 minutes, put the CENTER PUMPS R switch-light, on the P5 Overhead Panel, to the OFF position.
 - 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 6) If the MAT shows ACTIVE or LATCHED, then do these steps:
 - a) Replace the center right override fuel pump, M28203.

These are the tasks:

Override/Jettison Pump Motor-Impeller - Removal, AMM TASK 28-22-06-000-801,

Override/Jettison Pump Motor-Impeller - Installation, AMM TASK 28-22-06-400-801.

- b) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

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- c) Put the CENTER PUMPS R switch-light, on the P5 Overhead Panel, to the ON position.
- d) Make sure that the amber PRESS light goes off, for the CENTER PUMPS R switch-light on the P5 Overhead Panel.
- e) After 5 minutes, put the CENTER PUMPS R switch-light, on the P5 Overhead Panel, to the OFF position.
- f) If the MAT shows NOT ACTIVE for the maintenance message (or if the fault does not show), then you corrected the fault.
- (n) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (6) Replace the Power Panel Controller, M24501 in the Power Panel P200.

These are the tasks:

Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,

Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.

- (a) Push the CENTER PUMPS R switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (b) Push the CENTER PUMPS R switch to the OFF position.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (7) Do these steps to do a check of the wiring from the ELCU to the override pump:
 - (a) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (b) Do a wiring check between these pins of connector DM28203 at the center right override fuel pump M28203, and DM28213 on the ELCU for the CTR R OVRD FUEL PUMP (M28213) (SSM 28-22-13) (WDM 28-22-13):

DM28203		DM28213
pin B	.....	pin A2
pin D	.....	pin B2
pin F	.....	pin C2

- 1) Find the problem and repair the wiring.
- (c) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

NOTE: This step closes the ELCU again.

- (d) Make sure the MAT does not show ACTIVE or LATCHED for the maintenance message.
NOTE: This is a check that the ELCU is closed.
- (e) Put the CENTER PUMPS R switch-light, on the P5 Overhead Panel, to the ON position.

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- (f) After 5 minutes, put the CENTER PUMPS R switch-light, on the P5 Overhead Panel, to the OFF position.
- (g) Make sure the MAT does not show ACTIVE or LATCHED for the maintenance message.
NOTE: This is a check that the ELCU is still closed.
- (h) Do an electrical check for 3 Phase 115V AC at connector DM28203.
 - 1) If 115V AC does not show, repair the wiring.
- (i) Connect the electrical connector DM28203 to the right override fuel pump (WDM 28-22-13).
- (j) Put the CENTER PUMPS R switch-light, on the P5 Overhead Panel, to the ON position.
- (k) Make sure that the amber PRESS light goes off, for the CENTER PUMPS R switch-light on the P5 Overhead Panel.
- (l) After 5 minutes, put the CENTER PUMPS R switch-light, on the P5 Overhead Panel, to the OFF position.
 - 1) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), then you corrected the fault.
 - 2) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (8) Do these steps to do a check of the internal wiring in the P200 panel:
 - (a) Do a check of the internal wiring in the P200 panel from connector DM28213 on M28213 to connector DM24501 on the Power Panel Controller, M25401.
 - (b) Repair the problems that you find.
 - (c) Push the CENTER PUMPS R switch to the ON position.
NOTE: Let the pump run for 15 seconds.
 - (d) Push the CENTER PUMPS R switch to the OFF position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— END OF TASK —————

878. L FWD BOOST PUMP POWER RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-13123.

B. Initial Evaluation

- (1) Do this task: L FWD FUEL BST PMP GFI CTRL RLY Problems - Fault Isolation, 28-22 TASK 896.

————— END OF TASK —————

879. R FWD BOOST PUMP POWER RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11047.

B. Initial Evaluation

- (1) Do this task: R FWD FUEL BST PMP GFI CTRL RLY Problems - Fault Isolation, 28-22 TASK 897.

————— END OF TASK —————

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880. L FWD FUEL BST PUMP L XFR Relay Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11044.

B. Initial Evaluation



DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is a minimum of 1000 LBS (500 KGS) of fuel in the left main fuel tank.
NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

Row	Col	Number	Name
E	2	C28303	L AFT FUEL BOOST PUMP
E	5	C28307	L FWD FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- (b) Get access to the FUEL Maintenance page and Synoptic page and monitor whether the pump operates correctly (green box is illuminated and pressure is shown).
- (c) Push the L PUMPS AFT switch to the ON position, on the overhead panel P5.
NOTE: Let the pump run for 15 seconds. When you operate the L PUMPS AFT switch the transfer relay will cycle.
- (d) Push the L PUMPS AFT switch to the OFF position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) If the pump does not operate correctly (green box is not illuminated and pressure is not shown) the problem is in the control circuit, do these steps:
 - (a) Do a check of the L FWD BST PUMP CNTL RLY (ground fault interrupter), K28121 (WDM 28-22-11):

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- 1) If the RESET button on the L FWD BST PUMP CNTL RLY, K28121, has come up:

NOTE: A white line should display on the side of the button if it has come up.

- a) Make sure the BITE test button on the L FWD BST PUMP CNTL RLY, K28121, is not pushed in.

<1> If it is pushed in, then do these steps to restore power to the boost pump:

<a> Open these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

 Push the RESET button on the L FWD BST PUMP CNTL RLY, K28121, and make sure the RESET button stays in.

<c> Close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

<d> Do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

<2> If it is not pushed in, then continue.

- b) Do a continuity check of the L FWD BST PUMP SWITCHING RLY, K28120 (P320 panel):

<1> Open these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

<2> Make sure there is continuity between pins C3 and C2, pins B3 and B2, pins A3 and A2.

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<a> If there is no continuity, replace the L FWD BST PUMP SWITCHING RLY, K28120 and do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

 If there is continuity, continue.

<3> Close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

c) Do these steps to make sure the pump circuit is in phase:

<1> Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

<2> Remove the L FWD FUEL BST PUMPS L XFER RLY, K28124, from the left power management panel (LPMP) P110.

<3> Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

<4> Do a check for 3 phase 115 VAC at pins A2, B2 and C2, on the connector DK28124, on the LPMP P110.

<5> Make sure there is 115 VAC at pin X1, on the connector DK28124.

<6> Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

<7> Install the L FWD FUEL BST PUMPS L XFER RLY, K28124, in the LPMP P110.

<8> Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

d) Do a check of the pump wiring from the L FWD BST PUMP SWITCHING RLY, K28120, to the L FWD BST PUMP CNTL RLY, K28121.

<1> Make sure that none of the wires are incorrectly grounded.

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- <a> If there are problems with the wiring, repair the problems that you find, and do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.
- If there are no problems with the wiring, continue.
- e) Do a check of the pump wiring from the L FWD FUEL BST PMP L XFER RLY, K28124, to the L FWD BST PUMP SWITCHING RLY, K28120.
 - <1> Make sure that none of the wires are incorrectly grounded.
 - <a> If there are problems with the wiring, repair the problems that you find, and do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.
 - If there are no problems with the wiring, continue.
 - f) Replace the L FWD FUEL BST PMP L XFER RLY, K28124.
 - <1> Do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.
 - <a> If the pump operates, then you have fixed the problem.
 - If the pump does not operate, continue.
- 2) If the RESET button on the ground fault interrupter, K28121, has not come up, then continue.
- (b) Replace the Signal Interface Unit 2 (SIU 2), M24505.

These are the tasks:

Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002,
Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (c) Push the L PUMPS AFT switch to the ON position.

NOTE: Let the pump run for 15 seconds.
- (d) Push the L PUMPS AFT switch to the OFF position.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (2) If the pump operates correctly (green box is illuminated and pressure is shown) the problem is in the indication circuit, do these steps:
 - (a) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24505, in the left power management panel (LPMP) P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

 - 1) Push the L PUMPS AFT switch to the ON position.

NOTE: Let the pump run for 15 seconds.
 - 2) Push the L PUMPS AFT switch to the OFF position.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) Do these steps to check the relay indication wiring (WDM 28-22-11):

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- 1) Remove the ELMS SIU 2, M24505, from the LPMP P110. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 2) Do a wiring resistance check between these pins of connector DM24505C on the SIU 2, M24505 and the relay connector DK28124, on the LPMP P110:

DM24505C	DK28124	
pin 88	pin A1	18 k ohms

- (c) Repair the wiring problems that you find.
- (d) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
E	5	C28307	L FWD FUEL BOOST PUMP

- (e) Install the ELMS SIU2, M24505 into the LPMP P110. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (f) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
E	5	C28307	L FWD FUEL BOOST PUMP

- (g) Push the L PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (h) Push the L PUMPS AFT switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

881. R FWD FUEL BST PUMP L XFR RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12034.

B. Initial Evaluation



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is a minimum of 1000 LBS (500 KGS) of fuel in the right main fuel tank.
NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).

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- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (b) Get access to the FUEL Maintenance page and Synoptic page and monitor whether the pump operates correctly (green box is illuminated and pressure is shown).
- (c) Push the R PUMPS AFT switch to the ON position, on the overhead panel P5.
NOTE: Let the pump run for 15 seconds.
NOTE: When you operate the R PUMPS AFT switch the transfer relay will cycle.
- (d) Push the R PUMPS AFT switch to the OFF position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) If the pump does not operate correctly (green box is not illuminated and pressure is not shown) the problem is in the control circuit, do these steps:
 - (a) Do a check of the R FWD BST PUMP CNTL RLY (ground fault interrupter), K28241 (WDM 28-22-21):
 - 1) If the RESET button on the R FWD BST PUMP CNTL RLY, K28241, has come up:
NOTE: A white line should display on the side of the button if it has come up.
 - a) Make sure the BITE test button on the R FWD BST PUMP CNTL RLY, K28241, is not pushed in.
<1> If it is pushed in, then do these steps to restore power to the boost pump:
<a> Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

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 Push the RESET button on the R FWD BST PUMP CNTL RLY, K28241, and make sure the RESET button stays in.

<c> Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP LAC SECT 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<d> Do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

<2> If it is not pushed in, then continue.

b) Do a continuity check of the R FWD BST PUMP SWITCHING RLY, K28241 (P110 panel):

<1> Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP LAC SECT 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<2> Make sure there is continuity between pins C3 and C2, pins B3 and B2, pins A3 and A2.

<a> If there is no continuity, replace the R FWD BST PUMP SWITCHING RLY, K28241 and do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

 If there is continuity, continue.

<3> Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP LAC SECT 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

c) Do these steps to make sure the pump circuit is in phase:

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<1> Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<2> Remove the R FWD FUEL BST PUMPS R XFER RLY, K28245, from the right power management panel (RPMP) P210.

<3> Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<4> Do a check for 3 phase 115 VAC at pins A2, B2 and C2, on the connector DK28245, on the RPMP P210.

<5> Make sure there is 115 VAC at pin X1, on the connector DK28245.

<6> Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<7> Install the R FWD FUEL BST PUMPS R XFER RLY, K28245, from the right power management panel (RPMP) P210.

<8> Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

d) Do a check of the pump wiring from the R FWD BST PUMP SWITCHING RLY, K28243, to the R FWD BST PUMP CNTL RLY, K28241.

<1> Make sure that none of the wires are incorrectly grounded.

<a> If there are problems with the wiring, repair the problems that you find, and do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

 If there are no problems with the wiring, continue.

e) Do a check of the pump wiring from the R FWD FUEL BST PMP R XFER RLY, K28245, to the R FWD BST PUMP SWITCHING RLY, K28243.

<1> Make sure that none of the wires are incorrectly grounded.

<a> If there are problems with the wiring, repair the problems that you find, and do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

 If there are no problems with the wiring, continue.

f) Replace the R FWD FUEL BST PMP R XFER RLY, K28245.

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- <1> Do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.
- <a> If the pump operates, then you have fixed the problem.
- If the pump does not operate, continue.
- 2) If the RESET button on the R FWD BST PUMP CNTL RLY, K28241, has not come up, then continue.
- (b) Replace the Signal Interface Unit 2 (SIU 2), M24509, in the Right Power Management Panel P210.
- These are the tasks:
- Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002,
Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (c) Push the R PUMPS AFT switch to the ON position.
- NOTE: Let the pump run for 15 seconds.
- (d) Push the R PUMPS AFT switch to the OFF position.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (2) If the pump operates correctly (green box is illuminated and pressure is shown) the problem is in the indication circuit, do these steps:
- (a) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24509, in the right power management panel (RPMP) P210.
- This is the task:
- Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.
- 1) Push the R PUMPS AFT switch to the ON position.
- NOTE: Let the pump run for 15 seconds.
- 2) Push the R PUMPS AFT switch to the OFF position.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- 4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) Do these steps to check the relay indication wiring (WDM 28-22-21):
- 1) Remove the ELMS SIU2, M24509, from the RPMP P210. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 2) Do a wiring resistance check between these pins of connector DM24509C on the SIU 2, M24509C and the relay connector DK28245, on the RPMP P210:

DM24509C	DK28245	
pin 79	pin A1	18 k ohms

- (c) Repair the wiring problems that you find.
- (d) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

Row	Col	Number	Name
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

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- (e) Install the ELMS SIU 2, M24509 into the RPMP P210. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (f) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (g) Push the R PUMPS AFT switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (h) Push the R PUMPS AFT switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

882. L FWD FUEL BST PUMP SWITCHING RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-13126.

B. Initial Evaluation



DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is a minimum of 1000 LBS (500 KGS) of fuel in the left main fuel tank.
NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Supply AC power to the Left XFER BUS and the GROUND SERVICE BUS. To supply power, do this task: Supply Electrical Power, AMM TASK 24-22-00-860-805.
 - (b) Open this circuit breaker:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

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- (c) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (d) Make sure the L PUMPS AFT switch is in the OFF position, on the overhead panel P5.
- (e) Get access to the FUEL Maintenance page and Synoptic page and monitor whether the pump operates correctly (green box is illuminated and pressure is shown).
- (f) Push the L PUMPS FWD switch to the ON position, on the overhead panel P5.
NOTE: Let the pump run for 15 seconds.
- (g) Push the L PUMPS FWD switch to the OFF position.
- (h) Close this circuit breaker:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

- (i) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

- (j) Push the L PUMPS FWD switch to the ON position, on the overhead panel P5.
NOTE: Let the pump run for 15 seconds.
- (k) Push the L PUMPS FWD switch to the OFF position.
- (l) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

- (m) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (n) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) If the pump does not operate correctly (green box is not illuminated and pressure is not shown) the problem is in the control circuit, do these steps:
- (a) Do a check of the L FWD BST PUMP CNTL RLY (ground fault interrupter), K28121 (WDM 28-22-11):

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- 1) If the RESET button on the L FWD BST PUMP CNTL RLY, K28121, has come up:

NOTE: A white line should display on the side of the button if it has come up.

- a) Make sure the BITE test button on the L FWD BST PUMP CNTL RLY, K28121, is not pushed in.

<1> If it is pushed in, then do these steps to restore power to the boost pump:

<a> Open these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

 Push the RESET button on the L FWD BST PUMP CNTL RLY, K28121, and make sure the RESET button stays in.

<c> Close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

<d> Do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

<2> If it is not pushed in, then continue.

- b) Do a continuity check of the L FWD BST PUMP SWITCHING RLY, K28120 (P320 panel):

<1> Open these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

<2> Make sure there is continuity between pins C3 and C2, pins B3 and B2, pins A3 and A2.

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<a> If there is no continuity, replace the L FWD BST PUMP SWITCHING RLY, K28120 and do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

 If there is continuity, continue.

<3> Close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

c) Do these steps to make sure the pump circuit is in phase:

<1> Open these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
E	5	C28307	L FWD FUEL BOOST PUMP

<2> Remove the L FWD FUEL BST PUMP SWITCHING RELAY, K28120, from the ground service/handling power panel (GSPP) P320.

<3> Close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

<4> Put the L PUMPS AFT switch to the ON position.

<5> Do a check for 3 phase 115 VAC at pins A1, B1 and C1, on the relay K28120, on the GSPP P320.

<6> Do a check for 3 phase 115 VAC at pins A3, B3 and C3, on the relay K28120, on the GSPP P320.

<7> Make sure there is 115 VAC at pin X1, on the relay K28120.

<8> Make sure there is 115 VAC at pin 11, on the relay K28120.

<9> Make sure there is continuity between pin X2, on the relay K28120 and structure ground.

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<10> Open these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

<11> Install the L FWD FUEL BST PUMP SWITCHING RELAY, K28120, in the GSPP P320.

<12> Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
E	5	C28307	L FWD FUEL BOOST PUMP

d) Do a check of the pump wiring from the L FWD BST PUMP SWITCHING RLY, K28120, to the L FWD BST PUMP CNTL RLY, K28121.

<1> Make sure that none of the wires are incorrectly grounded.

<a> If there are problems with the wiring, repair the problems that you find, and do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

 If there are no problems with the wiring, continue.

e) Do a check of the pump wiring from the L FWD FUEL BST PMP L XFER RLY, K28124, to the L FWD BST PUMP SWITCHING RLY, K28120.

<1> Make sure that none of the wires are incorrectly grounded.

<a> If there are problems with the wiring, repair the problems that you find, and do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

 If there are no problems with the wiring, continue.

f) Replace the L FWD BST PUMP SWITCHING RLY, K28120.

<1> Do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

<a> If the pump operates, then you have fixed the problem.

 If the pump does not operate, continue.

2) If the RESET button on the ground fault interrupter, K28121, has not come up, then continue.

(b) Do a check of the Signal Interface Unit 2 (SIU 2), M24513 in the Standby Power Management Panel (SPMP) P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

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- (c) Do the Repair Confirmation procedure at the end of this task.
- (2) If the pump operates correctly (green box is illuminated and pressure is shown) the problem is in the indication circuit, do these steps:

- (a) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24513, in the standby power management panel (SPMP) P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Do the Repair Confirmation procedure at the end of this task.
- (b) Do these steps to check the relay indication wiring (WDM 28-22-11):
- 1) Remove the ELMS SIU 2 M24513, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 2) Do a wiring resistance check between these pins of connector DM24513C on the SIU 2, M24513 and the relay K28120, on the GSPP P320:

DM24513C	K28120	
pin 98	pin 12	47 k ohms

- (c) Repair the wiring problems that you find.
- (d) Open these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

- (e) Install the ELMS SIU 2, M24513 into the SPMP P320. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (f) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

- (g) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Do these steps to make sure you corrected the problem:

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- (a) Open this circuit breaker:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

- (b) Make sure the L PUMPS AFT switch is in the OFF position, on the overhead panel P5.
(c) Push the L PUMPS FWD switch to the ON position, on the overhead panel P5.
NOTE: Let the pump run for 15 seconds.
(d) Push the L PUMPS FWD switch to the OFF position.
(e) Close this circuit breaker:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

- (f) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

- (g) Push the L PUMPS FWD switch to the ON position, on the overhead panel P5.
NOTE: Let the pump run for 15 seconds.
(h) Push the L PUMPS FWD switch to the OFF position.
(i) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

- (j) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
(k) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

883. R FWD FUEL BST PUMP SWITCHING RELAY Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11048.

B. Initial Evaluation

 WARNING	DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
(a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.

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- (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is a minimum of 1000 LBS (500 KGS) of fuel in the right main fuel tank.
NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Supply AC power to the Left Bus and the R XFER BUS. To supply power, do this task: Supply Electrical Power, AMM TASK 24-22-00-860-805.
- (b) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

- (c) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- (d) Make sure the R PUMPS AFT switch is in the OFF position, on the overhead panel P5.
- (e) Get access to the FUEL Maintenance page and Synoptic page and monitor whether the pump operates correctly (green box is illuminated and pressure is shown).
- (f) Push the R PUMPS FWD switch to the ON position, on the overhead panel P5.
NOTE: Let the pump run for 15 seconds.
- (g) Push the R PUMPS FWD switch to the OFF position.
- (h) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

- (i) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (j) Push the R PUMPS FWD switch to the ON position, on the overhead panel P5.
NOTE: Let the pump run for 15 seconds.
- (k) Push the R PUMPS FWD switch to the OFF position.

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- (l) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (m) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (n) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) If the pump does not operate correctly (green box is not illuminated and pressure is not shown) the problem is in the control circuit, do these steps:

- (a) Do a check of the R FWD BST PUMP CNTL RLY (ground fault interrupter), K28241 (WDM 28-22-21):

- 1) If the RESET button on the R FWD BST PUMP CNTL RLY, K28241, has come up:

NOTE: A white line should display on the side of the button if it has come up.

- a) Make sure the BITE test button on the R FWD BST PUMP CNTL RLY, K28241, is not pushed in.

<1> If it is pushed in, then do these steps to restore power to the boost pump:

<a> Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

 Push the RESET button on the R FWD BST PUMP CNTL RLY, K28241, and make sure the RESET button stays in.

<c> Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<d> Do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

<2> If it is not pushed in, then continue.

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- b) Do a continuity check of the R FWD BST PUMP SWITCHING RLY, K28243 (P110 panel):

<1> Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<2> Make sure there is continuity between pins C3 and C2, pins B3 and B2, pins A3 and A2.

<a> If there is no continuity, replace the R FWD BST PUMP SWITCHING RLY, K28243 and do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

 If there is continuity, continue.

<3> Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- c) Do these steps to make sure the pump circuit is in phase:

<1> Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<2> Remove the R FWD FUEL BST PUMP SWITCHING RELAY, K28243, from the left power management panel (LPMP) P110.

<3> Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- <4> Put the R PUMPS AFT switch to the ON position.
- <5> Do a check for 3 phase 115 VAC at pins A1, B1 and C1, on the relay K28243, on the LPMP P110.
- <6> Do a check for 3 phase 115 VAC at pins A3, B3 and C3, on the relay K28243, on the LPMP P110.
- <7> Make sure there is 115 VAC at pin 11, on the relay K28243.
- <8> Make sure there is 115 VAC at pin X1, on the relay K28243.
- <9> Make sure there is continuity between pin X2, on the relay K28243 and structure ground.
- <10> Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- <11> Install the R FWD FUEL BST PUMP SWITCHING RELAY, K28243, in the LPMP P110.
- <12> Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- d) Do a check of the pump wiring from the R FWD BST PUMP SWITCHING RLY, K28243, to the R FWD BST PUMP CNTL RLY, K28241.
 - <1> Make sure that none of the wires are incorrectly grounded.
 - <a> If there are problems with the wiring, repair the problems that you find, and do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.
 - If there are no problems with the wiring, continue.
- e) Do a check of the pump wiring from the R FWD FUEL BST PMP R XFER RLY, K28245, to the R FWD BST PUMP SWITCHING RLY, K28243.
 - <1> Make sure that none of the wires are incorrectly grounded.
 - <a> If there are problems with the wiring, repair the problems that you find, and do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

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- If there are no problems with the wiring, continue.
- f) Replace the R FWD BST PUMP SWITCHING RLY, K28243.
- <1> Do this task: Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.
- <a> If the pump operates, then you have fixed the problem.
- If the pump does not operate, continue.
- 2) If the RESET button on the R FWD BST PUMP CNTL RLY, K28241, has not come up, then continue.
- (b) Do a check of the SIU 2, M24505 in the Left Power Management Panel, P110.
This is the task:
Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.
- (c) Do the Repair Confirmation procedure at the end of this task.
- (2) If the pump operates correctly (green box is illuminated and pressure is shown) the problem is in the indication circuit, do these steps:
- (a) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24505, in the left power management panel (LPMP) P110.
This is the task:
Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.
- 1) Do the Repair Confirmation procedure at the end of this task.
- (b) Do these steps to check the relay indication wiring (WDM 28-22-21):
- 1) Remove the ELMS SIU 2, M24505, from the LPMP P110. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 2) Do a wiring resistance check between these pins of connector DM24505C on the SIU 2, M24505 and the relay K28243, on the LPMP P110:

DM24505C	K28243	
pin 86	pin 12	18 k ohms

- (c) Repair the wiring problems that you find.
- (d) Open these circuit breakers:

Left Power Management Panel, P110

Row	Col	Number	Name
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

Right Power Management Panel, P210

Row	Col	Number	Name
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (e) Install the ELMS SIU 2, M24505 into the LPMP P110. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.

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

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (g) Do the Repair Confirmation procedure at the end of this task.

D. Repair Confirmation

- (1) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

- (a) Make sure the R PUMPS AFT switch is in the OFF position, on the overhead panel P5.
(b) Push the R PUMPS FWD switch to the ON position, on the overhead panel P5.

NOTE: Let the pump run for 15 seconds.

- (c) Push the R PUMPS FWD switch to the OFF position.
(d) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

- (e) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (f) Push the R PUMPS FWD switch to the ON position, on the overhead panel P5.
NOTE: Let the pump run for 15 seconds.
(g) Push the R PUMPS FWD switch to the OFF position.
(h) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
(j) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

884. FWD FUEL CROSSFEED VALVE (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11035.

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B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Put the FUEL CROSSFEED FWD switch, on the overhead panel P5, to the OPEN and CLOSED positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), there was an intermittent fault.
 - 1) If there was an intermittent fault, a fault in the valve actuator can be the cause.

NOTE: The replacement of the valve actuator is an optional step that can help decrease repeated intermittent faults.
 - a) To decrease repeated intermittent faults, it is recommended to replace the valve actuator:
 - <1> Do this task: FWD/AFT Fuel Crossfeed Valve Actuator - Removal, AMM TASK 28-22-04-000-802.
 - <2> Do this task: FWD/AFT Fuel Crossfeed Valve Actuator - Installation, AMM TASK 28-22-04-400-802.

C. Fault Isolation Procedure

- (1) Replace the actuator V28163 for the forward fuel crossfeed valve.

These are the tasks:

FWD/AFT Fuel Crossfeed Valve Actuator - Removal, AMM TASK 28-22-04-000-802,
FWD/AFT Fuel Crossfeed Valve Actuator - Installation, AMM TASK 28-22-04-400-802.

 - (a) Put the FUEL CROSSFEED FWD switch to the OPEN and CLOSED positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.
 - (b) If the MAT shows NOT ACTIVE for the maintenance (or if the message does not show), you corrected the fault.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Put one person at the actuator of the forward fuel crossfeed valve, installed on the rear spar of the left center fuel tank.
- (3) Put the FUEL CROSSFEED FWD switch to the OPEN position.
- (4) Make sure the manual override handle, for the forward crossfeed valve actuator, moves to the OPEN position.
- (5) Put the FUEL CROSSFEED FWD switch to the CLOSED position.
- (6) Make sure the manual override handle, for the forward crossfeed valve actuator, moves to the CLOSED position.
- (7) If the manual override handle on the actuator operates correctly, do these steps:
 - (a) Do a check of the Signal Interface Unit 1 (SIU 1), M24504, installed in the left power management panel (LPMP) P110.

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This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Put the FUEL CROSSFEED FWD switch to the OPEN and CLOSED positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.

- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (b) Do these steps to check the valve indication wiring (WDM 28-22-14):

- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	23	C28629	FUEL XFEED VLV FWD

- 2) Remove the electrical connector DV28163 from the actuator for the forward crossfeed valve.
- 3) Remove the SIU 1, M24504, from the LPMP P110. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 4) Do a wiring check between these pins on connector DV28163 and connector DM24504A for the SIU 1, M24504, on the LPMP P110:

DV28163	DM24504A
pin 3	pin 9

- 5) Repair the wiring problems.
 - a) Install the SIU 1, M24504, in the LPMP P110. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- 6) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	23	C28629	FUEL XFEED VLV FWD

- 7) Put the FUEL CROSSFEED FWD switch to the OPEN and CLOSED positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.

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

- (8) If the manual override handle on the actuator does not operate correctly, do these steps:

- (a) Replace the FUEL CROSSFEED FWD switch S7 (WDM 28-22-14).

- (b) Put the FUEL CROSSFEED FWD switch to the OPEN and CLOSED positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.

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- (c) If the MAT shows NOT ACTIVE for the maintenance (or if the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (e) Do these steps to check the valve control wiring (WDM 28-22-14):

- 1) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	23	C28629	FUEL XFEED VLV FWD

- 2) Remove the electrical connector DV28163 from the actuator of the forward fuel crossfeed valve.
- 3) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	23	C28629	FUEL XFEED VLV FWD

- 4) Put the FUEL CROSSFEED FWD switch to the OPEN position.
- 5) Make sure 28 VDC shows at pin 2, on connector DV28163.
- 6) Make sure 0 VDC shows at pin 5, on connector DV28163.
- 7) Put the FUEL CROSSFEED FWD switch to the CLOSED position.
- 8) Make sure 28 VDC shows at pin 5, on connector DV28163.
- 9) Make sure 0 VDC shows at pin 2, on connector DV28163.
- 10) Make sure there is continuity between pin 4 on connector DV28163 and structure ground.
- 11) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	23	C28629	FUEL XFEED VLV FWD

- 12) Repair the wiring problems that you find.
- 13) Install the electrical connector DV28163 to the actuator of the forward fuel crossfeed valve.
- 14) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	23	C28629	FUEL XFEED VLV FWD

- 15) Put the FUEL CROSSFEED FWD switch to the OPEN and CLOSED positions two times.
NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.
- 16) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— END OF TASK —————

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885. AFT FUEL CROSSFEED VALVE (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-13113.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Put the FUEL CROSSFEED AFT switch, on the overhead panel P5, to the OPEN and CLOSED positions two times.
NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), there was an intermittent fault.
 - 1) If there was an intermittent fault, a fault in the valve actuator can be the cause.
NOTE: The replacement of the valve actuator is an optional step that can help decrease repeated intermittent faults.
 - a) To decrease repeated intermittent faults, it is recommended to replace the valve actuator:
 - <1> Do this task: FWD/AFT Fuel Crossfeed Valve Actuator - Removal, AMM TASK 28-22-04-000-802.
 - <2> Do this task: FWD/AFT Fuel Crossfeed Valve Actuator - Installation, AMM TASK 28-22-04-400-802.

C. Fault Isolation Procedure

- (1) Replace the actuator V28263 for the aft fuel crossfeed valve.
These are the tasks:
FWD/AFT Fuel Crossfeed Valve Actuator - Removal, AMM TASK 28-22-04-000-802,
FWD/AFT Fuel Crossfeed Valve Actuator - Installation, AMM TASK 28-22-04-400-802.
 - (a) Put the FUEL CROSSFEED AFT switch to the OPEN and CLOSED positions two times.
NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.
 - (b) If the MAT shows NOT ACTIVE for the maintenance (or if the message does not show), you corrected the fault.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Put one person at the actuator of the aft fuel crossfeed valve, installed on the rear spar of the left center fuel tank.
- (3) Put the FUEL CROSSFEED AFT switch to the OPEN position.
- (4) Make sure the manual override handle, for the aft crossfeed valve actuator, moves to the OPEN position.
- (5) Put the FUEL CROSSFEED AFT switch to the CLOSED position.

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- (6) Make sure the manual override handle, for the aft crossfeed valve actuator, moves to the CLOSED position.
- (7) If the manual override handle on the actuator operates correctly, do these steps:
 - (a) Do a check of the Signal Interface Unit 2 (SIU 2), M24513, installed in the standby power management panel (SPMP) P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Put the FUEL CROSSFEED AFT switch to the OPEN and CLOSED positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.

- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (b) Do these steps to check the valve indication wiring (WDM 28-22-24):

- 1) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28612	FUEL XFEED VLV AFT

- 2) Remove the electrical connector DV28263 from the actuator for the aft crossfeed valve.
- 3) Remove the SIU 2, M24513, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 4) Do a wiring check between these pins on connector DV28263 and connector DM24513A for the SIU 2, M24513, on the SPMP P310:

DV28263	DM24513A
pin 3	pin 25

- 5) Repair the wiring problems that you find.
 - a) Install the SIU 2, M24513, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.

- 6) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28612	FUEL XFEED VLV AFT

- 7) Put the FUEL CROSSFEED AFT switch to the OPEN and CLOSED positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.

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

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- (8) If the manual override handle on the actuator does not operate correctly, do these steps:
- (a) Replace the FUEL CROSSFEED AFT switch S8 (WDM 28-22-24).
 - (b) Put the FUEL CROSSFEED AFT switch to the OPEN and CLOSED positions two times.
NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.
 - (c) If the MAT shows NOT ACTIVE for the maintenance (or if the message does not show), you corrected the fault.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (e) Do these steps to check the valve control wiring (WDM 28-22-24):

- 1) Open this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28612	FUEL XFEED VLV AFT

- 2) Remove the electrical connector DV28263 from the actuator of the aft fuel crossfeed valve.
- 3) Close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28612	FUEL XFEED VLV AFT

- 4) Put the FUEL CROSSFEED AFT switch to the OPEN position.
- 5) Make sure 28 VDC shows at pin 2, on connector DV28263.
- 6) Make sure 0 VDC shows at pin 5, on connector DV28263.
- 7) Put the FUEL CROSSFEED AFT switch to the CLOSED position.
- 8) Make sure 28 VDC shows at pin 5, on connector DV28263.
- 9) Make sure 0 VDC shows at pin 2, on connector DV28263.
- 10) Make sure there is continuity between pin 4 on connector DV28263 and structure ground.
- 11) Open this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28612	FUEL XFEED VLV AFT

- 12) Repair the wiring problems that you find.
- 13) Install the electrical connector DV28263 to the actuator of the aft fuel crossfeed valve.
- 14) Close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28612	FUEL XFEED VLV AFT

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- 15) Put the FUEL CROSSFEED AFT switch to the OPEN and CLOSED positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.

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

————— END OF TASK —————

886. L FWD FUEL BOOST PUMP (PRESS SWITCH IS LOW, PUMP COMMANDED ON) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-13114.

B. Initial Evaluation

 WARNING	DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.

- (2) Do a check of this circuit breaker:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

- (3) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker is open, then, do this task: Left Main Tank, Forward Boost Pump Circuit Breaker Open - Fault Isolation, 28-22 TASK 855.
- (4) If the L FWD FUEL BOOST PUMP GND SVCE (320G9) circuit breaker is closed, then continue.
- (5) Make sure there is a minimum of 1000 LBS (500 KGS) of fuel in the left main fuel tank.

NOTE: This fuel quantity will prevent dry operation of the fuel pumps.

 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (6) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (7) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

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Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (b) Push the L PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (c) Push the L PUMPS FWD switch to the OFF position.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure all of the switches for the center and main fuel tank pumps are in the OFF position, on the overhead panel (P5).
- (2) Have one person get access to the left forward boost pump (M28101), installed on the rear spar of the left main fuel tank, thru the

<u>Number</u>	<u>Name/Location</u>
551DB	Inboard Fixed Trailing Edge Panel

- (3) Push the L PUMPS FWD switch to the ON position, on the overhead panel P5.
- (4) Listen to make sure the left forward boost pump (M28101) operates.
- (5) Push the L PUMPS FWD switch to the OFF position.
- (6) If the left forward boost pump operates correctly, replace the pressure switch S28138.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- (a) Push the L PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (b) Push the L PUMPS FWD switch to the OFF position.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (7) If the left forward fuel boost pump does not operate, replace the boost pump M28101.

These are the tasks:

Boost Pump Motor-Impeller - Removal, AMM TASK 28-22-05-000-801,

Boost Pump Motor-Impeller - Installation, AMM TASK 28-22-05-400-801.

- (a) Push the L PUMPS FWD switch to the ON position, on the overhead panel P5.
- (b) Listen to make sure the left forward boost pump (M28101) operates.

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- (c) Push the L PUMPS FWD switch to the OFF position.
- (d) If the left forward fuel boost pump operates, then continue to the next step.
- (e) If the left forward fuel boost pump does not operate, do these steps:
 - 1) Disconnect the electrical connector DM28101 from the fuel pump (WDM 28-22-11).
 - 2) Push the L PUMPS FWD switch to the ON position.
 - 3) Do an electrical check for 3 Phase 115V AC at connector DM28101.
 - 4) If 115V AC does not show, repair the wiring.
 - 5) Push the L PUMPS FWD switch to the OFF position.
 - 6) Connect the electrical connector DM28101 to the fuel pump.
- (f) Push the L PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (g) Push the L PUMPS FWD switch to the OFF position.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (8) Do a check of the ELMS Signal Interface Unit 1 (SIU 1) M24512, in the standby power management panel (SPMP) P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Push the L PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (b) Push the L PUMPS FWD switch to the OFF position.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (9) Do these steps to check the wiring:
 - (a) Open these circuit breakers and install safety tags:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28138 and the Signal Interface Unit 1 (SIU 1), M24512 in the SPMP P310 (WDM 28-22-11):
 - 1) Remove the SIU 1, M24512, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.

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- 2) Disconnect the electrical connector DS28138 from the fuel pump pressure switch.
 - a) Do a check of the electrical connector DS28138 for damage or corrosion (SWPM 20-10-06).
 - b) Do a check of the electrical connector DS28138 for a ground.
 - c) If a ground is found at the electrical connector DS28138, replace the connector (SWPM 20-61-11).
- 3) Do a wiring check to make sure there is continuity between pin 2 on connector DS28138 and structure ground.
- 4) Do this wiring check between the these pins on connector DS28138 and connector DM24512C for the SIU 1, M24512 in the SPMP P310 (WDM 28-22-11).

DS28138	DM24512C
pin 3	pin 31

- (c) Repair the wiring problems that you find.
- (d) Install the SIU 1, M24512, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (e) Install the connector DS28138 to the pressure switch on the fuel pump.
- (f) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (g) Push the L PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (h) Push the L PUMPS FWD switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— **END OF TASK** —————

887. R FWD FUEL BOOST PUMP (PRESS SWITCH IS LOW, PUMP COMMANDED ON) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11050.

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B. Initial Evaluation



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.

- (2) Do a check of this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

- (3) If the R FWD FUEL BOOST PUMP L AC SECT 2 (110C18) circuit breaker is open, then, do this task: Right Main Tank, Forward Boost Pump Circuit Breaker Open - Fault Isolation, 28-22 TASK 854.
- (4) If the R FWD FUEL BOOST PUMP L AC SECT 2 (110C18) circuit breaker is closed, then continue.
- (5) Make sure there is a minimum of 1000 LBS (500 KGS) of fuel in the right main fuel tank.
NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (6) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (7) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (b) Push the R PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (c) Push the R PUMPS FWD switch to the OFF position.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), then there was an intermittent fault.

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C. Fault Isolation Procedure

- (1) Make sure all of the switches for the center and main fuel tank pumps are in the OFF position, on the overhead panel (P5).
- (2) Have one person get access to the right forward boost pump (M28201), installed on the rear spar of the right main fuel tank, thru the

<u>Number</u>	<u>Name/Location</u>

651DB	Inboard Fixed Trailing Edge Panel

- (3) Push the R PUMPS FWD switch to the ON position, on the overhead panel P5.
- (4) Listen to make sure the right forward boost pump (M28201) operates.
- (5) Push the R PUMPS FWD switch to the OFF position.
- (6) If the right forward boost pump operates correctly, replace the pressure switch S28238.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- (a) Push the R PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (b) Push the R PUMPS FWD switch to the OFF position.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (7) If the right forward fuel boost pump does not operate, replace the boost pump M28201.

These are the tasks:

Boost Pump Motor-Impeller - Removal, AMM TASK 28-22-05-000-801,

Boost Pump Motor-Impeller - Installation, AMM TASK 28-22-05-400-801.

- (a) Push the R PUMPS FWD switch to the ON position, on the overhead panel P5.
- (b) Listen to make sure the right forward boost pump (M28101) operates.
- (c) Push the R PUMPS FWD switch to the OFF position.
- (d) If the right forward boost pump operates, then continue to the next step.
- (e) If the right forward boost pump does not operate, do these steps:
 - 1) Disconnect the electrical connector DM28201 from the fuel pump (WDM 28-22-21).
 - 2) Push the R PUMPS FWD switch to the ON position.
 - 3) Do an electrical check for 3 Phase 115V AC at connector DM28201.
 - 4) If 115V AC does not show, repair the wiring.
 - 5) Push the R PUMPS FWD switch to the OFF position.
 - 6) Connect the electrical connector DM28201 to the fuel pump.
- (f) Push the R PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (g) Push the R PUMPS FWD switch to the OFF position.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

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- (i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (8) Do a check of the ELMS Signal Interface Unit 2, M24505, in the left power management panel (LPMP) P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Push the R PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (b) Push the R PUMPS FWD switch to the OFF position.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (9) Do these steps to check the wiring:
- (a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP LAC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (b) Do these steps to do a check of the wiring between the pressure switch S28238 and the Signal Interface Unit 2 (SIU 2), M24505 in the LPMP P110 (WDM 28-22-21):
- 1) Remove the SIU 2, M24505, from the LPMP P110. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Disconnect the electrical connector DS28238 from the fuel pump pressure switch.
 - a) Do a check of the electrical connector DS28238 for damage or corrosion (SWPM 20-10-06).
 - b) Do a check of the electrical connector DS28238 for a ground.
 - c) If a ground is found at the electrical connector DS28238, replace the connector (SWPM 20-61-11).
 - 3) Do a wiring check to make sure there is continuity between pin 2 on connector DS28238 and structure ground.
 - 4) Do this wiring check between the these pins on connector DS28238 and connector DM24505C for the SIU 2, M24505 in the LPMP P110 (WDM 28-22-21).

DS28238	DM24505C
pin 3	pin 16

- (c) Repair the wiring problems that you find.
- (d) Install the SIU 2, M24505, in the LPMP P110. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (e) Install the connector DS28238 to the pressure switch on the fuel pump.

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

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (g) Push the R PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (h) Push the R PUMPS FWD switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— **END OF TASK** —————

888. **L FWD FUEL BOOST PUMP (PRESS SWITCH IS HIGH, PUMP COMMANDED OFF) - Fault Isolation**

A. Maintenance Messages

- (1) This task is for maintenance message: 28-13115.

B. Initial Evaluation



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is a minimum of 1000 LBS (500 KGS) of fuel in the left main fuel tank.
NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

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Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (b) Push the L PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (c) Push the L PUMPS FWD switch to the OFF position.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check the pressure switch:
 - (a) Get access to the FUEL MANAGEMENT maintenance page on the lower EICAS display.
 - (b) Disconnect the electrical connector DS28138 from the fuel pump pressure switch (AMM TASK 28-42-01-000-801).
 - (c) If the STATUS indication on the EICAS maintenance page shows NO PRESS for the L FWD MAIN PUMP, do a check of the electronic load management system (ELMS) Signal Interface Unit 1 (SIU 1), M24512, in the standby power management panel (SPMP) P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Connect the electrical connector DS28138 to the fuel pump pressure switch.
- 2) Push the L PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- 3) Push the L PUMPS FWD switch to the OFF position.
- 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (d) If the STATUS indication on the EICAS maintenance page shows PRESS for the L FWD MAIN PUMP, replace the pressure switch S28138.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- 1) Connect the electrical connector DS28138 to the fuel pump pressure switch.
- 2) Push the L PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.

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- 3) Push the L PUMPS FWD switch to the OFF position.
 - 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do these steps to check the wiring:
- (a) Open these circuit breakers and install safety tags:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28138 and the Signal Interface Unit 1 (SIU 1), M24512 in the SPMP P310 (WDM 28-22-11):
 - 1) Remove the Signal Interface Unit 1 (SIU 1), M24512, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Disconnect the electrical connector DS28138 from the fuel pump pressure switch.
 - 3) Do a wiring check to make sure there is continuity between pin 2 on connector DS28138 and structure ground.
 - 4) Do this wiring check between the these pins on connector DS28138 and connector DM24512C for the SIU 1, M24512 in the SPMP P310 (WDM 28-22-11).

DS28138	DM24512C
pin 3	pin 31

- (c) Repair the wiring problems that you find.
- (d) Install the SIU 1, M24512, in the SPMP P310. To install it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- (e) Install the connector DS28138 to the pressure switch on the fuel pump.
- (f) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

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Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (g) Push the L PUMPS FWD switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- (h) Push the L PUMPS FWD switch to the OFF position.

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

————— **END OF TASK** —————

889. R FWD FUEL BOOST PUMP (PRESS SWITCH IS HIGH, PUMP COMMANDED OFF) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11051.

B. Initial Evaluation



WARNING

DO NOT OPERATE ANY FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (1) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is a minimum of 1000 LBS (500 KGS) of fuel in the right main fuel tank.
- NOTE: This fuel quantity will prevent dry operation of the fuel pumps.
- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (b) Push the R PUMPS FWD switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- (c) Push the R PUMPS FWD switch to the OFF position.

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- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check the pressure switch:

- (a) Get access to the FUEL MANAGEMENT maintenance page on the lower EICAS display.
- (b) Disconnect the electrical connector DS28238 from the fuel pump pressure switch (AMM TASK 28-42-01-000-801).
- (c) If the STATUS indication on the EICAS maintenance page shows NO PRESS for the R FWD MAIN PUMP, do a check of the electronic load management system (ELMS) Signal Interface Unit (SIU 2), M24505, in the left power management panel (LPMP) P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Connect the electrical connector DS28238 to the fuel pump pressure switch.
- 2) Push the R PUMPS FWD switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- 3) Push the R PUMPS FWD switch to the OFF position.
- 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

- 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- a) Push the R PUMPS FWD switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- b) Push the R PUMPS FWD switch to the OFF position.

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

- d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (d) If the STATUS indication on the EICAS maintenance page shows PRESS for the R FWD MAIN PUMP, replace the pressure switch S28238.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- 1) Connect the electrical connector DS28238 to the fuel pump pressure switch.
- 2) Push the R PUMPS FWD switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- 3) Push the R PUMPS FWD switch to the OFF position.
- 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

- 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

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(2) Do these steps to check the wiring:

(a) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

(b) Do these steps to do a check of the wiring between the pressure switch S28238 and the Signal Interface Unit 2 (SIU2), M24505 in the LPMP P110 (WDM 28-22-21):

- 1) Remove the SIU 2, M24505, from the LPMP P110. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 2) Disconnect the electrical connector DS28238 from the fuel pump pressure switch.
- 3) Do a wiring check to make sure there is continuity between pin 2 on connector DS28238 and structure ground.
- 4) Do this wiring check between the these pins on connector DS28238 and connector DM24505C for the SIU 2, M24505 in the LPMP P110 (WDM 28-22-21).

DS28238	DM24505C
pin 3	pin 16

- (c) Repair the wiring problems that you find.
- (d) Install the SIU 2, M24505, in the LPMP P110. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (e) Install the connector DS28238 to the pressure switch on the fuel pump.
- (f) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (g) Push the R PUMPS FWD switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (h) Push the R PUMPS FWD switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

————— **END OF TASK** —————

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890. CTR L OVRD Pump Ground Fault Activated - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11055.

B. Initial Evaluation.



DO NOT CLOSE AN OPEN CIRCUIT BREAKER OR AN OPEN GROUND FAULT RELAY. DAMAGE TO THE FUEL PUMP OR A WIRE BUNDLE PROBLEM CAN CAUSE THE CIRCUIT BREAKER OR THE RELAY TO OPEN. YOU MUST CORRECT THE CAUSE OF THE PROBLEM. A FIRE OR EXPLOSION CAN OCCUR.

28-AWL-17: CDCCL

- (1) Complete the fault isolation before returning the airplane to service.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

28-AWL-17: CDCCL

- (2) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the left center override pump, M28103.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

- (a) If the left center override pump is okay, then continue.



DO NOT OPERATE A FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. IT CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE TANK WHICH WILL CAUSE A FIRE OR EXPLOSION. FIRES AND EXPLOSIONS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (3) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (4) Make sure there is more than 5000 LB (2300 KG) of fuel in the center fuel tank for this procedure.
- NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.
- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (5) Do these steps to configure the airplane:
- (a) Make sure the airplane is in the ground mode (AMM TASK 32-09-00-860-801).

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- (b) Open this access door:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (c) Make sure the JETTISON ARM switch, on the overhead panel P5, is in the OFF position.
- (d) Make sure the APU is not on (AMM TASK 49-11-00-860-805).
- (e) Make sure the engines are not on.
- (f) Make sure there is not more than one external power source connected to the airplane (AMM TASK 24-22-00-860-806).
- (6) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (7) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that this circuit breaker is closed:
- Left Power Management Panel, P110**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|---------------------------|
| L | 21 | C28647 | CTR L OVRD FUEL PUMP CTRL |
- (b) Close this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure all of the switches for the center and main fuel tank pumps are in the OFF position, on the overhead panel (P5).
- (2) Replace the left center pump M28103.
- These are the tasks:
- Override/Jettison Pump Motor-Impeller - Removal, AMM TASK 28-22-06-000-801,
Override/Jettison Pump Housing - Removal, AMM TASK 28-22-06-000-802.
- (a) Push the CENTER PUMPS L switch to the ON position, on the overhead panel P5.
- (b) Listen to make sure the left center pump (M28103) operates.
- (c) Push the CENTER PUMPS L switch to the OFF position.
- (d) If the left center pump operates, then continue to the next step.
- (e) If the left center pump does not operate, do these steps:
- 1) Disconnect the electrical connector DM28103 from the left center pump (WDM 28-22-13).
 - 2) Push the CENTER PUMPS L switch to the ON position.
 - 3) Do an electrical check for 3 Phase 115V AC at connector DM28103.
 - 4) If 115V AC does not show, repair the wiring.
 - 5) Push the CENTER PUMPS L switch to the OFF position.

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- 6) Connect the electrical connector DM28103 to the left center pump (WDM 28-22-12).
- (f) Push the CENTER PUMPS L switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (g) Push the CENTER PUMPS L switch to the OFF position.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Replace the Power Panel Controller (PPC) M24500 in the Power Panel P100 (WDM 28-22-13).
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Do these wiring checks:
- (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (b) Disconnect the connector DM28103 from the Center Left Override Fuel Pump, M28103.
- (c) Disconnect connector D10005P from the P100 Power Panel.
- (d) Do a wiring check between these pins on connector DM28103 and the connector D10005P on the Power Panel, P100.

D10005P	DM28103
pin F	pin B
pin E	pin D
pin D	pin F

- (e) Disconnect connector D10025P from the Power Panel, P100.
- (f) Disconnect connector D11005P from the Left Power Management Panel (LPMP), P110.
- (g) Do a wiring check between these pins on connector D11005P on the LPMP, P110 and the connector D10025P on the Power Panel P100.

D11005P	D10025P
pin 13	pin 13

- (h) Do a check of the internal wiring between the Power Panel Controller, M24500 and the CTR L OVRD FUEL PUMP ELCU, M28109 in the Power Panel P100 (WDM 28-22-13).
- (i) Do these steps to check the wiring to the Left Center Pump Inhibit Relay K28130, in the LPMP P110:
- 1) Remove the Left Center Pump Inhibit Relay K28130 from the LPMP P110.
 - 2) Disconnect the connector D11005, from the LPMP P110.
- (j) Do this wiring check between the Left Center Pump Inhibit Relay K28130 and the connector D11005:

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DK28130

pin B3

D11005

pin 13

- (k) Repair the wiring.
- (l) Install these components removed for access:
 - 1) Install the Left Center Pump Inhibit relay K28130, in the LPMP P110.
 - 2) Connect the connector D10025P to the LPMP P100.
 - 3) Connect the connector D11005 to the Power Panel P110.
 - 4) Connect the connector D10005 to the Power Panel P100.
 - 5) Connect the connector DM28103 from the Center Left Override Fuel Pump, M28103.

- (m) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (n) Push the CENTER PUMPS L switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (o) Push the CENTER PUMPS L switch to the OFF position.
- (p) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (q) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (5) Do these steps to do a check for problems with the CENTER L FUEL PUMP Switch in the flight compartment:
 - (a) Do this task: CENTER L FUEL PUMP Switch - Fault Isolation, 28-22 TASK 804.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— **END OF TASK** —————

891. CTR R OVRD Pump Ground Fault Activated - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12039.

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B. Initial Evaluation.



DO NOT CLOSE AN OPEN CIRCUIT BREAKER OR AN OPEN GROUND FAULT RELAY. DAMAGE TO THE FUEL PUMP OR A WIRE BUNDLE PROBLEM CAN CAUSE THE CIRCUIT BREAKER OR THE RELAY TO OPEN. YOU MUST CORRECT THE CAUSE OF THE PROBLEM. A FIRE OR EXPLOSION CAN OCCUR.

28-AWL-17: CDCCL

- (1) Complete the fault isolation before returning the airplane to service.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

28-AWL-17: CDCCL

- (2) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the right center override pump, M28203.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

- (a) If the right center override pump is okay, then continue.



DO NOT OPERATE A FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. IT CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE TANK WHICH WILL CAUSE A FIRE OR EXPLOSION. FIRES AND EXPLOSIONS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (3) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.

- (4) Make sure there is more than 5000 LB (2300 KG) of fuel in the center fuel tank for this procedure.

NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.

- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).

- (5) Do these steps to configure the airplane:

- (a) Make sure the airplane is in the ground mode (AMM TASK 32-09-00-860-801).
- (b) Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (c) Make sure the JETTISON ARM switch, on the overhead panel P5, is in the OFF position.
- (d) Make sure the APU is not on (AMM TASK 49-11-00-860-805).

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- (e) Make sure the engines are not on.
- (f) Make sure there is not more than one external power source connected to the airplane (AMM TASK 24-22-00-860-806).
- (6) Make sure there is more than 5000 LB (2300 KG) of fuel in the center fuel tank for this procedure.

NOTE: This fuel quantity will prevent dry operation of the center fuel pumps.

- (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).
- (7) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (8) If the MAT shows LATCHED for the maintenance message, then do these steps:

- (a) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (b) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Make sure all of the switches for the center and main fuel tank pumps are in the OFF position, on the overhead panel (P5).
- (2) Replace the right center pump M28203.

These are the tasks:

Override/Jettison Pump Motor-Impeller - Removal, AMM TASK 28-22-06-000-801,

Override/Jettison Pump Housing - Removal, AMM TASK 28-22-06-000-802.

- (a) Push the CENTER PUMPS R switch to the ON position, on the overhead panel P5.
- (b) Listen to make sure the right center pump (M28203) operates.
- (c) Push the CENTER PUMPS R switch to the OFF position.
- (d) If the right center pump operates, then continue to the next step.
- (e) If the right center pump does not operate, do these steps:
 - 1) Disconnect the electrical connector DM28203 from the right center pump (WDM 28-22-23).
 - 2) Push the CENTER PUMPS R switch to the ON position.
 - 3) Do an electrical check for 3 Phase 115V AC at connector DM28203.
 - 4) If 115V AC does not show, repair the wiring.
 - 5) Push the CENTER PUMPS R switch to the OFF position.

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- 6) Connect the electrical connector DM28203 to the right center pump (WDM 28-22-12).
- (f) Push the CENTER PUMPS R switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (g) Push the CENTER PUMPS R switch to the OFF position.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Replace the Power Panel Controller (PPC) M24501 in the Power Panel P200 (WDM 28-22-23).
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Do these wiring checks:
- (a) Open this circuit breaker and install safety tag:
- Right Power Management Panel, P210**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|---------------------------|
| L | 2 | C28644 | CTR R OVRD FUEL PUMP CTRL |
- (b) Disconnect the connector DM28203 from the Center Right Override Fuel Pump, M28203.
- (c) Disconnect connector D20005P from the P200 Power Panel.
- (d) Do a wiring check between these pins on connector DM28203 and the connector D20005P on the Power Panel, P200.
- | D20005P | | DM28203 |
|----------------|-------|----------------|
| pin F | ..... | pin B |
| pin E | ..... | pin D |
| pin D | ..... | pin F |
- (e) Disconnect connector D20025P from the Power Panel, P200.
- (f) Disconnect connector D21026P from the Right Power Management Panel (RPMP), P210.
- (g) Do a wiring check between these pins on connector D21026P on the RPMP, P210 and the connector D20025P on the Power Panel P200.
- | D21026P | | D20025P |
|----------------|-------|----------------|
| pin 19 | ..... | pin 13 |
- (h) Do a check of the internal wiring between the Power Panel Controller, M24501 and the CTR R OVRD FUEL PUMP ELCU, M28213 in the Power Panel P200 (WDM 28-22-23).
- (i) Do these steps to check the wiring to the Right Center Pump Inhibit Relay K28230, in the RPMP P210:
- 1) Remove the Right Center Pump Inhibit Relay K28230 from the RPMP P210.
 - 2) Disconnect the connector D21026, from the RPMP P210.

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- (j) Do this wiring check between the Right Center Pump Inhibit Relay K28230 and the connector D21026:

DK28230	D21026
pin B3	pin 19

- (k) Repair the wiring.
- (l) Install these components removed for access:
- 1) Install the Right Center Pump Inhibit relay K28230, in the RPMP P210.
 - 2) Connect the connector D20025P to the RPMP P200.
 - 3) Connect the connector D21026 to the Power Panel P210.
 - 4) Connect the connector D20005 to the Power Panel P200.
 - 5) Connect the connector DM28203 from the Center Right Override Fuel Pump, M28203.

- (m) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

Row	Col	Number	Name
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (n) Push the CENTER PUMPS R switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (o) Push the CENTER PUMPS R switch to the OFF position.
- (p) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (q) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (5) Do these steps to do a check for problems with the CENTER R FUEL PUMP Switch in the flight compartment:
- (a) Do this task: CENTER R FUEL PUMP Switch - Fault Isolation, 28-22 TASK 805.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— END OF TASK —————

892. Relay (L Override Pump CTRL) is not in commanded position - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-22001.

B. Initial Evaluation



DO NOT OPERATE A FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. IT CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE TANK WHICH WILL CAUSE A FIRE OR EXPLOSION. FIRES AND EXPLOSIONS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (1) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.

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- (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.
- (2) Make sure there is more than 30000 lbs (13700 kg) of fuel in the center fuel tank for this procedure.

NOTE: This fuel quantity is necessary to cover the fuel pump.

- (a) Refuel the tank, if it is necessary (Pressure Refueling, AMM TASK 12-11-01-650-801).
- (3) Make sure the airplane is in the ground mode (AMM TASK 32-09-00-860-801).
- (4) Make sure the JETTISON ARM switch, on the P5 overhead panel, is in the OFF position.
- (5) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

NOTE: When you open the refueling station door, the auto shutoff function is disabled for the center fuel pumps.

- (6) Put the DEFUEL VALVE switch, on the P28 Integrated Refueling Panel, to the OPEN position.
- (7) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (8) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Push the CENTER PUMPS L switch, on the P5 overhead panel, to the ON position.
 - (b) Let the pump run for 15 seconds.
 - (c) Push the CENTER PUMPS L switch, on the P5 overhead panel, to the OFF position.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.
 - 1) Put the DEFUEL VALVE switch, on the P28 Integrated Refueling Panel, to the CLOSED position.
 - 2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

C. Fault Isolation Procedure

- (1) Replace the LEFT OVRD PUMP CTRL relay, K28253, on the LEFT OVRD/JETTISON FUEL PUMP RELAYS panel, P301, in the main equipment center (SSM 28-22-13, WDM 28-22-13).
 - (a) Do the Repair Confirmation at the end of this task.
- (2) Do a check of the Signal Interface Unit (SIU) 2, M24505, on the left power management panel (LPMP), P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

 - (a) Do the Repair Confirmation at the end of this task.
- (3) Do these wiring checks:

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- (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (b) Remove the LEFT OVRD PUMP CTRL RELAY, K28253, from the LEFT OVRD/JETTISON FUEL PUMP RELAYS panel, P301 (SSM 28-22-13, WDM 28-22-13).
- (c) Do a wiring check between the connector DK28253 for the LEFT OVRD PUMP CTRL relay and the connector D11034 on the LPMP, P110.

DK28253	D11034
pin 12	pin 18
pin 11	pin 21

- (d) Do a wiring check between the connector D11034 on the LPMP P110 and the connector DM24505C on the SIU 2.

D11034	DM24505C
pin 21	pin 4

- (e) Repair the wiring.
- (f) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL

- (g) Install the LEFT OVRD PUMP CTRL RELAY, K28253, on the LEFT OVRD/JETTISON FUEL PUMP RELAYS panel, P301 (SSM 28-22-13, WDM 28-22-13).
- (h) Do the Repair Confirmation at the end of this task.

D. Repair Confirmation

- (1) Do these steps to verify that you corrected the fault:
- Push the CENTER PUMPS L switch, on the P5 overhead panel, to the ON position.
 - Let the pump run for 15 seconds.
 - Push the CENTER PUMPS L switch, on the P5 overhead panel, to the OFF position.
 - If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - Put the DEFUEL VALVE switch, on the P28 Integrated Refueling Panel, to the CLOSED position.
 - Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

———— **END OF TASK** ————

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894. Relay (R Override Pump CTRL) is not in commanded position - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-22003.

B. Initial Evaluation



DO NOT OPERATE A FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. IT CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE TANK WHICH WILL CAUSE A FIRE OR EXPLOSION. FIRES AND EXPLOSIONS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (1) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS light comes on and stays on.

- (2) Make sure there is more than 30000 lbs (13700 kg) of fuel in the center fuel tank for this procedure.

NOTE: This fuel quantity is necessary to cover the fuel pump.

- (a) Refuel the tank, if it is necessary (Pressure Refueling, AMM TASK 12-11-01-650-801).
- (3) Make sure the airplane is in the ground mode (AMM TASK 32-09-00-860-801).
- (4) Make sure the JETTISON ARM switch, on the P5 overhead panel, is in the OFF position.
- (5) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

NOTE: When you open the refueling station door, the auto shutoff function is disabled for the center fuel pumps.

- (6) Put the DEFUEL VALVE switch, on the P28 Integrated Refueling Panel, to the OPEN position.
- (7) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (8) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Push the CENTER PUMPS R switch, on the P5 overhead panel, to the ON position.
 - (b) Let the pump run for 15 seconds.
 - (c) Push the CENTER PUMPS R switch, on the P5 overhead panel, to the OFF position.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.
 - 1) Put the DEFUEL VALVE switch, on the P28 Integrated Refueling Panel, to the CLOSED position.
 - 2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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C. Fault Isolation Procedure

- (1) Replace the RIGHT OVRD PUMP CTRL relay, K28254, on the RIGHT OVRD/JETTISON FUEL PUMP RELAYS panel, P302, in the main equipment center (SSM 28-22-23, WDM 28-22-23).

(a) Do the Repair Confirmation at the end of this task.

- (2) Do a check of the Signal Interface Unit (SIU) 2, M24509, on the right power management panel (RPMP), P210.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

(a) Do the Repair Confirmation at the end of this task.

- (3) Do these wiring checks:

(a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (b) Remove the RIGHT OVRD PUMP CTRL RELAY, K28254, from the RIGHT OVRD/JETTISON FUEL PUMP RELAYS panel, P302 (SSM 28-22-23, WDM 28-22-23).

- (c) Do a wiring check between the connector DK28254 for the RIGHT OVRD PUMP CTRL relay and the connector D21036 on the RPMP, P210.

<u>DK28254</u>	<u>D21036</u>
pin 12	pin 32
pin 11	pin 33

- (d) Do a wiring check between the connector D21036 on the RPMP P210 and the connector DM24509C on the SIU 2.

<u>D21036</u>	<u>DM24509C</u>
pin 33	pin 5

(e) Repair the wiring.

(f) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

- (g) Install the RIGHT OVRD PUMP CTRL RELAY, K28254, on the RIGHT OVRD/JETTISON FUEL PUMP RELAYS panel, P302 (SSM 28-22-23, WDM 28-22-23).

(h) Do the Repair Confirmation at the end of this task.

D. Repair Confirmation

- (1) Do these steps to verify that you corrected the fault:

(a) Push the CENTER PUMPS R switch, on the P5 overhead panel, to the ON position.

(b) Let the pump run for 15 seconds.

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- (c) Push the CENTER PUMPS R switch, on the P5 overhead panel, to the OFF position.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 1) Put the DEFUEL VALVE switch, on the P28 Integrated Refueling Panel, to the CLOSED position.
 - 2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

— END OF TASK —

896. L FWD FUEL BST PMP GFI CTRL RLY Problems - Fault Isolation

A. Initial Evaluation



WARNING

DO NOT CLOSE AN OPEN CIRCUIT BREAKER OR AN OPEN GROUND FAULT RELAY. DAMAGE TO THE FUEL PUMP OR A WIRE BUNDLE PROBLEM CAN CAUSE THE CIRCUIT BREAKER OR THE RELAY TO OPEN. YOU MUST CORRECT THE CAUSE OF THE PROBLEM. A FIRE OR EXPLOSION CAN OCCUR.

 28-AWL-17: CDCCL

- (1) Complete the Fault Isolation before returning the airplane to service.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.



WARNING

DO NOT OPERATE A FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. IT CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE TANK WHICH WILL CAUSE A FIRE OR EXPLOSION. FIRES AND EXPLOSIONS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS Light comes ON and stays ON.
- (3) Make sure there is a minimum of 13000 lbs (5900 kg) of fuel in the left main fuel tank.

NOTE: This fuel quantity is necessary to cover the Fuel Pump.

 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).

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28-AWL-17: CDCCL

- (4) Do the AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801 for the Left Forward Boost Pump, M28101.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

- (5) If the Maintenance Access Terminal (MAT) shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (6) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that these circuit breakers are closed:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (b) Get access to the FUEL Maintenance page and Synoptic page and monitor whether the pump operates correctly (green box is illuminated and pressure is shown).
- (c) Push the L PUMPS FWD Switch to the ON position.
- NOTE: Let the pump run for 15 seconds.
- (d) Push the L PUMPS FWD Switch to the OFF position.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent problem.
- (f) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.

B. Fault Isolation Procedure

- (1) If the pump does not operate correctly (green box is not illuminated and pressure is not shown), then the problem is in the control circuit. Do these steps:
- (a) Do a check of the L FWD FUEL BST PMP GFI CTRL RLY, K28121, on the P320 Panel.
- 1) If the RESET button on the L FWD FUEL BST PMP GFI CTRL RLY, K28121, has come up, then do these steps:
- NOTE: A white line should display on the side of the button if it has come up.
- a) Do these steps to reset the L FWD FUEL BST PUMP GFI CTRL RLY, K28121.
- <1> Make sure the L PUMPS FWD Switch is in the OFF position.

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<2> Open these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

<3> Push the RESET button on the L FWD FUEL BST PUMP GFI CTRL RLY, K28121, and make sure the RESET button stays in.

<4> Close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

<5> Push the L PUMPS FWD Switch to the ON position.

NOTE: Let the pump run for 15 seconds.

<6> Push the L PUMPS FWD Switch to the OFF position.

<7> If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

<8> If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

b) Do a check of the pump wiring from the L FWD FUEL BOOST PUMP, M28101, to the L FWD FUEL BST PMP GFI CTRL RLY, K28121.

<1> Make sure that all of the wires are correctly grounded.

<a> If there are problems with the wiring, repair the problems that you find, and do the Repair Confirmation at the end of this task.

 If there are no problems with the wiring, then continue the Fault Isolation.

c) Do a continuity check of the L FWD BST PUMP SW RLY, K28120, on the P320 Panel.

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- <1> Open these circuit breakers and install safety tags:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

- <2> Make sure there is continuity between pins C3 and C2, pins B3 and B2, pins A3 and A2.

<a> If there is no continuity, replace the L FWD BST PUMP SW RLY, K28120, and do the Repair Confirmation at the end of this task.

 If there is continuity, then continue the Fault Isolation.

- <3> Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

- d) Do these steps to make sure the pump circuit is in phase:

- <1> Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

- <2> Remove the L FWD FUEL BST PMP L XFER RLY, K28124, from the Left Power Management Panel (LPMP), P110.

- <3> Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

- <4> Do a check for 3 phase 115V AC at terminals A2, B2 and C2 of the socket of the L FWD FUEL BST PUMP L XFER RLY, K28124, on the LPMP, P110.

- <5> Make sure there is 115V AC at terminal X1 of the socket of the L FWD FUEL BST PUMP L XFER RLY, K28124.

- <6> Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

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<7> Install the L FWD FUEL BST PUMP L XFER RLY, K28124, on the LPMP, P110.

<8> Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

e) Do a check of the pump wiring from the L FWD FUEL BST PUMP L XFER RLY, K28124, to the L FWD BST PUMP SW RLY, K28120.

<1> Make sure that none of the 3 phase wires are grounded.

<a> If there are problems with the wiring, repair the problems that you find, and do the Repair Confirmation at the end of this task.

 If there are no problems with the wiring, then continue the Fault Isolation.

f) Do a check of the pump wiring from the L FWD BST PUMP SW RLY, K28120, to the L FWD FUEL BST PMP GFI CTRL RLY, K28121.

<1> Make sure that none of the 3 phase wires are grounded.

<a> If there are problems with the wiring, repair the problems that you find, and do the Repair Confirmation at the end of this task.

 If there are no problems with the wiring, then continue the Fault Isolation.

g) Do these steps to replace the L FWD FUEL BST PUMP GFI CTRL RLY, K28121.

<1> Open these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

<2> Replace the L FWD FUEL BST PUMP GFI CTRL RLY, K28121.

<3> Close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

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Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

<4> Do the Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

<a> If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

- 2) If the RESET button on the L FWD FUEL BST PMP GFI CTRL RLY, K28121, has not come up, then continue the Fault Isolation.

(b) Replace the L PUMPS FWD Switch, S5, on the P5 Overhead Panel (WDM 28-22-11). This is the task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.

- 1) Push the L PUMPS FWD Switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- 2) Push the L PUMPS FWD Switch to the OFF position.

- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

- 4) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

(c) Replace the Left Forward Boost Pump, M28101. These are the tasks:

- Boost Pump Motor-Impeller - Removal, AMM TASK 28-22-05-000-801
- Boost Pump Motor-Impeller - Installation, AMM TASK 28-22-05-400-801

- 1) Push the L PUMPS FWD Switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- 2) Push the L PUMPS FWD Switch to the OFF position.

- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

- 4) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

(d) Do these steps to check the relay control wiring (WDM 28-22-11):

- 1) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- 2) Remove the FUEL JETTISON Panel, M28001, on the P5 Overhead Panel, and remove the connector, DM28001C.

- 3) Make sure there is continuity between pin 4 of connector, DM28001C, and structure ground.

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- 4) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- 5) Make sure there is 28V DC at pin 5 of connector, DM28001C.
- 6) If you find a problem with the wiring, then repair the wiring.
- 7) If you do not find a problem with the wiring, then do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24513, in the Standby Power Management Panel (SPMP), P310. This is the task: Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.
- 8) Reconnect connector, DM28001C, and install the FUEL/FUEL JETTISON Panel, M28001.
- 9) Push the L PUMPS FWD Switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- 10) Push the L PUMPS FWD Switch to the OFF position.
- 11) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- (2) If the pump operates correctly (green box is illuminated and pressure is shown), then the problem is in the indication circuit. Do these steps:
- (a) Do a check of the ELMS Signal Interface Unit 1 (SIU 1), M24512, in the Standby Power Management Panel (SPMP), P310. This is the task: Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.
- 1) Push the L PUMPS FWD Switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- 2) Push the L PUMPS FWD Switch to the OFF position.
- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- 4) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.
- (b) Do these steps to check the relay indication wiring (WDM 28-22-11):
- 1) Open these circuit breakers and install safety tags:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

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- 2) Remove the L FWD FUEL BST PMP GFI CTRL RLY, K28121, from the Ground Service Power Panel (GSPP), P320.
- 3) Remove the ELMS SIU 1, M24512, from the SPMP P310. This is the task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 4) Do a wiring check between pin 80 of connector, DM24512C, on the SIU 1, M24512, and terminal A2 of the socket of the L FWD FUEL BST PMP GFI CTRL RLY, K28121, on the GSPP, P320.
- 5) Repair the wiring problems that you find.
- 6) Install the ELMS SIU 1, M24512, on the SPMP, P310. This is the task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002
- 7) Install the L FWD FUEL BST PMP GFI CTRL RLY, K28121, to the GSPP, P320.
- 8) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- 9) Push the L PUMPS FWD Switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- 10) Push the L PUMPS FWD Switch to the OFF position.
- 11) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

C. Repair Confirmation

- (1) Do a check to make sure the RESET button of the L FWD FUEL BST PMP GFI CTRL RLY, K28121, has not come up.
 - (a) If the RESET button has come up, then do these steps to restore power to the Boost Pump.

NOTE: A white line should display on the side of the button if it has come up.

- 1) Make sure the L PUMPS FWD Switch is in the OFF position.
- 2) Open these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

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Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- 3) Push the RESET button on the L FWD FUEL BST PMP GFI CTRL RLY, K28121, and make sure the RESET button stays in.
- 4) Close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (2) Push the L PUMPS FWD Switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (3) Push the L PUMPS FWD Switch to the OFF position.
- (4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- (5) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue at the subsequent step.

————— **END OF TASK** —————

897. R FWD FUEL BST PMP GFI CTRL RLY Problems - Fault Isolation

A. Initial Evaluation



DO NOT CLOSE AN OPEN CIRCUIT BREAKER OR AN OPEN GROUND FAULT RELAY. DAMAGE TO THE FUEL PUMP OR A WIRE BUNDLE PROBLEM CAN CAUSE THE CIRCUIT BREAKER OR THE RELAY TO OPEN. YOU MUST CORRECT THE CAUSE OF THE PROBLEM. A FIRE OR EXPLOSION CAN OCCUR.

28-AWL-17: CDCCL

- (1) Complete the Fault Isolation before returning the airplane to service.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

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DO NOT OPERATE A FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. IT CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE TANK WHICH WILL CAUSE A FIRE OR EXPLOSION. FIRES AND EXPLOSIONS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS Light comes ON and stays ON.
- (3) Make sure there is a minimum of 13000 lbs (5900 kg) of fuel in the right main fuel tank.

NOTE: This fuel quantity is necessary to cover the fuel pump.

 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).

28-AWL-17: CDCCL

- (4) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the Right Forward Boost Pump, M28201.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.
- (5) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (6) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (b) Get access to the FUEL Maintenance page and Synoptic page and monitor whether the pump operates correctly (green box is illuminated and pressure is shown).
- (c) Push the R PUMPS FWD Switch to the ON position.

NOTE: Let the pump run for 15 seconds.
- (d) Push the R PUMPS FWD Switch to the OFF position.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent problem.
- (f) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.

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B. Fault Isolation Procedure

- (1) If the pump does not operate correctly (green box is not illuminated and pressure is not shown), then the problem is in the control circuit. Do these steps:
 - (a) Do a check of the R FWD FUEL BST PMP GFI CTRL RLY, K28241, on the P110 Panel.
 - 1) If the RESET button on the R FWD FUEL BST PMP GFI CTRL RLY, K28241, has come up, then do these steps:

NOTE: A white line should display on the side of the button if it has come up.

- a) Do these steps to reset the R FWD FUEL BST PMP GFI CTRL RLY, K28241.
 - <1> Make sure the R PUMPS FWD Switch is in the OFF position.
 - <2> Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- <3> Push the RESET button on the R FWD FUEL BST PMP GFI CTRL RLY, K28241, and make sure the RESET button stays in.
- <4> Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- <5> Push the R PUMPS FWD Switch to the ON position.

NOTE: Let the pump run for 15 seconds.
- <6> Push the R PUMPS FWD Switch to the OFF position.
- <7> If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- <8> If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

- b) Do a check of the pump wiring from the R FWD FUEL BOOST PUMP, M28201, to the R FWD FUEL BST PMP GFI CTRL RLY, K28241.
 - <1> Make sure that none of the 3 phase wires are grounded.
 - <a> If there are problems with the wiring, repair the problems that you find, and do the Repair Confirmation at the end of this task.

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 If there are no problems with the wiring, continue the Fault Isolation.

- c) Do a continuity check of the R FWD BST PUMP SWITCHING RLY, K28243, on the P110 Panel.

<1> Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<2> Make sure there is continuity between pins C3 and C2, pins B3 and B2, pins A3 and A2.

<a> If there is no continuity, replace the R FWD BST PUMP SWITCHING RLY, K28243 and do the Repair Confirmation at the end of this task.

 If there is continuity, then continue the Fault Isolation.

<3> Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- d) Do these steps to make sure the pump circuit is in phase:

<1> Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<2> Remove the R FWD FUEL BST PUMPS R XFER RLY, K28245, from the Right Power Management Panel (RPMP), P210.

<3> Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<4> Do a check for 3 phase 115V AC at terminals A2, B2 and C2, of the socket of the R FWD FUEL BST PUMPS R XFER RLY, K28245, on the RPMP, P210.

<5> Make sure there is 115V AC at terminal X1 of the socket of the R FWD FUEL BST PUMPS R XFER RLY, K28245.

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<6> Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<7> Install the R FWD FUEL BST PUMPS R XFER RLY, K28245, from the Right Power Management Panel (RPMP), P210.

<8> Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

e) Do a check of the pump wiring from the R FWD FUEL BST PMP R XFER RLY, K28245, to the R FWD BST PUMP SWITCHING RLY, K28243.

<1> Make sure that none of the 3 phase wires are grounded.

<a> If there are problems with the wiring, repair the problems that you find, and do the Repair Confirmation at the end of this task.

 If there are no problems with the wiring, then continue the Fault Isolation.

f) Do a check of the pump wiring from the R FWD BST PUMP SWITCHING RLY, K28243, to the R FWD BST PUMP CNTL RLY, K28241.

<1> Make sure that none of the 3 phase wires are grounded.

<a> If there are problems with the wiring, repair the problems that you find, and do the Repair Confirmation at the end of this task.

 If there are no problems with the wiring, then continue the Fault Isolation.

g) Do these steps to replace the R FWD FUEL BST PMP GFI CTRL RLY, K28241.

<1> Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<2> Replace the R FWD FUEL BST PMP GFI CTRL RLY, K28241.

<3> Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

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Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

<4> Do the Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

<a> If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

- 2) If the RESET button on the R FWD FUEL BST PMP GFI CTRL RLY, K28241, has not come up, then continue the Fault Isolation.

(b) Replace the R PUMPS FWD Switch, S9, on the Overhead Panel, P5 (WDM 28-22-21). This is the task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.

- 1) Push the R PUMPS FWD Switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- 2) Push the R PUMPS FWD Switch to the OFF position.

- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

- 4) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

(c) Replace the Right Forward Boost Pump. These are the tasks:

- Boost Pump Motor-Impeller - Removal, AMM TASK 28-22-05-000-801
- Boost Pump Motor-Impeller - Installation, AMM TASK 28-22-05-400-801

- 1) Push the R PUMPS FWD Switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- 2) Push the R PUMPS FWD Switch to the OFF position.

- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

- 4) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

(d) Do these steps to check the relay control wiring (WDM 28-22-21):

- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

- 2) Remove the FUEL JETTISON panel M28001, on the Overhead Panel, P5, and remove the connector, DM28001A.

- 3) Make sure there is continuity between pin 45 on connector, DM28001A, and structure ground.

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- 4) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

- 5) Make sure there is 28V DC at pin 46 on connector, DM28001A.
- 6) Repair the wiring problems that you find.
- 7) Reconnect the connector, DM28001A, and install the FUEL/FUEL JETTISON Panel, M28001.
- 8) Push the R PUMPS FWD Switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- 9) Push the R PUMPS FWD Switch to the OFF position.
- 10) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

- (2) If the pump operates correctly (green box is illuminated and pressure is shown) the problem is in the indication circuit, do these steps:

- (a) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24505, in the LPMP, P110. This is the task: Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Push the R PUMPS FWD Switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- 2) Push the R PUMPS FWD Switch to the OFF position.
- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- 4) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

- (b) Do these steps to check the relay indication wiring (WDM 28-22-21):

- 1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- 2) Remove the R FWD FUEL BST PMP GFI CTRL RLY, K28241, from the LPMP, P110.
- 3) Remove the SIU 2, M24505, from the LPMP, P110. This is the task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 4) Do a wiring resistance check for 18 k ohms between pin 87 of connector, DM24505C, on the SIU 2, M24505, and terminal A1 of the socket of the R FWD FUEL BST PMP GFI CTRL RLY, K28241, on the LPMP, P110.

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- 5) Repair the wiring problems that you find.
- 6) Install the ELMS SIU 2, M24505, on the LPMP, P110. This is the task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- 7) Install the R FWD FUEL BST PMP GFI CTRL RLY, K28241, to the LPMP, P110.
- 8) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- 9) Push the R PUMPS FWD Switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- 10) Push the R PUMPS FWD Switch to the OFF position.
- 11) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

C. Repair Confirmation

- (1) Do a check to make sure the RESET button of the R FWD FUEL BST PMP GFI CTRL RLY, K28241, has not come up.
 - (a) If the RESET button has come up, then do these steps to restore power to the Boost Pump.

NOTE: A white line should display on the side of the button if it has come up.

- 1) Make sure the R PUMPS FWD Switch is in the OFF position.
- 2) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- 3) Push the RESET button on the R FWD FUEL BST PMP GFI CTRL RLY, K28241, and make sure the RESET button stays in.
- 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C28302	R FWD FUEL BOOST PUMP L AC SECT 2
L	27	C28606	R FWD FUEL BOOST PUMP CTRL

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Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	27	C28306	R FWD FUEL BOOST PUMP R XFR

- (2) Push the R PUMPS FWD Switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (3) Push the R PUMPS FWD Switch to the OFF position.
- (4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- (5) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue at the subsequent step.

————— **END OF TASK** —————

898. L AFT FUEL BST PMP GFI CTRL RLY Problems - Fault Isolation

A. Initial Evaluation



DO NOT CLOSE AN OPEN CIRCUIT BREAKER OR AN OPEN GROUND FAULT RELAY. DAMAGE TO THE FUEL PUMP OR A WIRE BUNDLE PROBLEM CAN CAUSE THE CIRCUIT BREAKER OR THE RELAY TO OPEN. YOU MUST CORRECT THE CAUSE OF THE PROBLEM. A FIRE OR EXPLOSION CAN OCCUR.

28-AWL-17: CDCCL

- (1) Complete the Fault Isolation before returning the airplane to service.
NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).
NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.



DO NOT OPERATE A FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. IT CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE TANK WHICH WILL CAUSE A FIRE OR EXPLOSION. FIRES AND EXPLOSIONS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS Light comes ON and stays ON.
- (3) Make sure there is a minimum of 6000 lbs (2800 kg) of fuel in the left main fuel tank and 170000 lbs (77200 kg) of fuel in the center tank (or the maximum load the volumetric shutoff will allow).
NOTE: This fuel quantity is necessary to cover the fuel pump.
 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).

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28-AWL-17: CDCCL

- (4) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the Left Aft Boost Pump, M28102.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

- (5) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (6) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- (b) Get access to the FUEL Maintenance page and Synoptic page and monitor whether the pump operates correctly (green box is illuminated and pressure is shown).
- (c) Push the L PUMPS AFT Switch to the ON position.
- NOTE: Let the pump run for 15 seconds.
- (d) Push the L PUMPS AFT Switch to the OFF position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent problem.

B. Fault Isolation Procedure

- (1) If the pump does not operate correctly (green box is not illuminated and pressure is not shown), then the problem is in the control circuit. Do these steps:
- (a) Do a check of the L AFT FUEL BST PMP GFI CTRL RLY, K28123, on the P110 Panel.
- 1) If the RESET button on the L AFT FUEL BST PMP GFI CTRL RLY, K28123, has come up, then do these steps:

NOTE: A white line should display on the side of the button if it has come up.

- a) Do these steps to reset the L AFT FUEL BST PMP GFI CTRL RLY, K28123.
- <1> Make sure the L PUMPS AFT Switch is in the OFF position.
- <2> Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- <3> Push the RESET button on the L AFT FUEL BST PMP GFI CTRL RLY, K28123, and make sure the RESET button stays in.

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<4> Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

<5> Push the L PUMPS AFT Switch to the ON position.

NOTE: Let the Pump run for 15 seconds.

<6> Push the L PUMPS AFT Switch to the OFF position.

<7> If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

<8> If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

b) Do these steps to make sure the pump circuit is in phase:

<1> Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

<2> Remove the L AFT FUEL BST PMP GFI CTRL RLY, K28123.

<3> Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

<4> Do a check for 3 phase 115V AC at terminals A2, B2 and C2, of the socket of the L AFT FUEL BST PMP GFI CTRL RLY, K28123.

<5> Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

<6> Install the L AFT FUEL BST PMP GFI CTRL RLY, K28123.

<7> Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

c) Do a check of the pump wiring from the L AFT FUEL BST PMP GFI CTRL RLY, K28123, to the LEFT AFT FUEL BOOST PUMP, M28102.

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- <1> Make sure that none of the 3 phase wires are grounded.
- <a> If there are problems with the wiring, repair the problems that you find, and do the Repair Confirmation at the end of this task.
- If there are no problems with the wiring, then continue the Fault Isolation.
- d) Do these steps to replace the L AFT FUEL BST PMP GFI CTRL RLY, K28123.
- <1> Open these circuit breakers:
- Left Power Management Panel, P110**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|----------------------------|
| E | 2 | C28303 | L AFT FUEL BOOST PUMP |
| L | 26 | C28607 | L AFT FUEL BOOST PUMP CTRL |
- <2> Replace the L AFT FUEL BST PMP GFI CTRL RLY, K28123.
- <3> Close these circuit breakers:
- Left Power Management Panel, P110**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|----------------------------|
| E | 2 | C28303 | L AFT FUEL BOOST PUMP |
| L | 26 | C28607 | L AFT FUEL BOOST PUMP CTRL |
- <4> Do the Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.
- <a> If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- 2) If the RESET button on the L AFT FUEL BST PMP GFI CTRL RLY, K28123, has not come up, then continue the Fault Isolation.
- (b) Replace the L PUMPS AFT Switch, S6, on the Overhead Panel, P5 (WDM 28-22-12).
- 1) Push the L PUMPS AFT Switch to the ON position.
- NOTE: Let the Pump run for 15 seconds.
- 2) Push the L PUMPS AFT Switch to the OFF position.
- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- 4) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.
- (c) Replace the Left Aft Boost Pump, M28102. These are the tasks:
- Boost Pump Motor-Impeller - Removal, AMM TASK 28-22-05-000-801
 - Boost Pump Motor-Impeller - Installation, AMM TASK 28-22-05-400-801
- 1) Push the L PUMPS AFT Switch to the ON position.
- NOTE: Let the Pump run for 15 seconds.
- 2) Push the L PUMPS AFT Switch to the OFF position.
- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- 4) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

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(d) Do these steps to check the relay control wiring (WDM 28-22-12):

- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- 2) Remove the FUEL JETTISON Panel, M28001, on the Overhead Panel (P5), and remove the connector, DM28001A.
- 3) Make sure there is continuity between pin 43 on connector, DM28001A, and structure ground.
- 4) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- 5) Make sure there is 28V DC at pin 44 on connector, DM28001A.
- 6) Repair the wiring.
- 7) Reconnect the connector, DM28001A, and install the FUEL/FUEL JETTISON Panel, M28001.
- 8) Push the L PUMPS AFT Switch to the ON position.
NOTE: Let the Pump run for 15 seconds.
- 9) Push the L PUMPS AFT Switch to the OFF position.
- 10) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

(2) If the pump operates correctly (green box is illuminated and pressure is shown), then the problem is in the indication circuit. Do these steps:

(a) Do a check of the ELMS Signal Interface Unit 2 (SIU2), M24505, in the LPMP, P110. This is the task: Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Push the L PUMPS AFT Switch to the ON position.

NOTE: Let the Pump run for 15 seconds.

- 2) Push the L PUMPS AFT Switch to the OFF position.
- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- 4) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

(b) Do these steps to check the relay indication wiring (WDM 28-22-12):

- 1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- 2) Remove the L AFT FUEL BST PMP GFI CTRL RLY, K28123, from the LPMP, P110.

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- 3) Remove the Signal Interface Unit 2 (SIU2) conditioning card, M24505, from the LPMP P110. This is the task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 4) Do a wiring resistance check for 18 k ohms between pin 89 of connector, DM24505C on the SIU2, M244505 and terminal A1 of the socket of the L AFT FUEL BST PMP GFI CTRL RLY, K28123, on the LPMP, P110.
- 5) Repair the wiring.
- 6) Install the SIU2, M24505, on the LPMP P110. This is the task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- 7) Install the L AFT FUEL BST PMP GFI CTRL RLY, K28123, in the LPMP, P110.
- 8) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- 9) Push the L PUMPS AFT Switch to the ON position.
NOTE: Let the Pump run for 15 seconds.
- 10) Push the L PUMPS AFT Switch to the OFF position.
- 11) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

C. Repair Confirmation

- (1) Do a check to make sure the RESET button of the L AFT FUEL BST PMP GFI CTRL RLY, K28123, has not come up.
 - (a) If the RESET button has come up, then do these steps to restore power to the Boost Pump.

NOTE: A white line should display on the side of the button if it has come up.

- 1) Make sure the L PUMPS AFT Switch is in the OFF position.
- 2) Open these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- 3) Push the RESET button on the L AFT FUEL BST PMP GFI CTRL RLY, K28123, and make sure the RESET button stays in.
- 4) Close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C28303	L AFT FUEL BOOST PUMP
L	26	C28607	L AFT FUEL BOOST PUMP CTRL

- (2) Push the L PUMPS AFT Switch to the ON position.

NOTE: Let the Pump run for 15 seconds.

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- (3) Push the L PUMPS AFT Switch to the OFF position.
- (4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- (5) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue at the subsequent step.

————— END OF TASK —————

899. R AFT FUEL BST PMP GFI CTRL RLY Problems - Fault Isolation

A. Initial Evaluation



DO NOT CLOSE AN OPEN CIRCUIT BREAKER OR AN OPEN GROUND FAULT RELAY. DAMAGE TO THE FUEL PUMP OR A WIRE BUNDLE PROBLEM CAN CAUSE THE CIRCUIT BREAKER OR THE RELAY TO OPEN. YOU MUST CORRECT THE CAUSE OF THE PROBLEM. A FIRE OR EXPLOSION CAN OCCUR.

28-AWL-17: CDCCL

- (1) Complete the Fault Isolation before returning the airplane to service.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.



DO NOT OPERATE A FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. IT CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE TANK WHICH WILL CAUSE A FIRE OR EXPLOSION. FIRES AND EXPLOSIONS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (2) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately push the applicable fuel pump switch-light(s) to OFF if the amber PRESS Light comes ON and stays ON.
- (3) Make sure there is a minimum of 6000 lbs (2800 kg) of fuel in the right main fuel tank and 170000 lbs (77200 kg) of fuel in the center tank (or the maximum load the volumetric shutoff will allow).

NOTE: This fuel quantity is necessary to cover the fuel pump.

 - (a) Refuel the fuel tank, if it is necessary (AMM TASK 12-11-01-650-801).

28-AWL-17: CDCCL

- (4) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the right aft boost pump, M28202.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

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- (5) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (6) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- (b) Get access to the FUEL Maintenance page and Synoptic page and monitor whether the pump operates correctly (green box is illuminated and pressure is shown).
- (c) Push the R PUMPS AFT Switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- (d) Push the R PUMPS AFT Switch to the OFF position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation Procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), then there was an intermittent problem.

B. Fault Isolation Procedure

- (1) If the pump does not operate correctly (green box is not illuminated and pressure is not shown), then the problem is in the control circuit. Do these steps:
 - (a) Do a check of the R AFT FUEL BST PMP GFI CTRL RLY, K28242, on the P210 Panel.
 - 1) If the RESET button on the R AFT FUEL BST PMP GFI CTRL RLY, K28242, has come up, then do these steps:

NOTE: A white line should display on the side of the button if it has come up.

- a) Do these steps to reset the R AFT FUEL BST PMP GFI CTRL RLY, K28242.

- <1> Make sure the R PUMPS AFT Switch is in the OFF position.
- <2> Open these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- <3> Push the RESET button on the R AFT FUEL BST PMP GFI CTRL RLY, K28242, and make sure the RESET button stays in.
- <4> Close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- <5> Push the R PUMPS AFT Switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- <6> Push the R PUMPS AFT Switch to the OFF position.

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- <7> If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- <8> If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.
- b) Do these steps to make sure the pump circuit is in phase:
- <1> Open these circuit breakers:
- Right Power Management Panel, P210**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|----------------------------|
| E | 27 | C28300 | R AFT FUEL BOOST PUMP |
| K | 11 | C28609 | R AFT FUEL BOOST PUMP CTRL |
- <2> Remove the R AFT FUEL BST PMP GFI CTRL RLY, K28242.
- <3> Close these circuit breakers:
- Right Power Management Panel, P210**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|----------------------------|
| E | 27 | C28300 | R AFT FUEL BOOST PUMP |
| K | 11 | C28609 | R AFT FUEL BOOST PUMP CTRL |
- <4> Do a check for 3 phase 115 V AC at terminals A2, B2 and C2, of the socket of the R AFT FUEL BST PMP GFI CTRL RLY, K28242.
- <5> Open these circuit breakers:
- Right Power Management Panel, P210**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|----------------------------|
| E | 27 | C28300 | R AFT FUEL BOOST PUMP |
| K | 11 | C28609 | R AFT FUEL BOOST PUMP CTRL |
- <6> Install the R AFT FUEL BST PMP GFI CTRL RLY, K28242.
- <7> Close these circuit breakers:
- Right Power Management Panel, P210**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|----------------------------|
| E | 27 | C28300 | R AFT FUEL BOOST PUMP |
| K | 11 | C28609 | R AFT FUEL BOOST PUMP CTRL |
- c) Do a check of the pump wiring from the R AFT FUEL BST PMP GFI CTRL RLY, K28242, to the RIGHT AFT FUEL BOOST PUMP, M28202.
- <1> Make sure that none of the 3 phase wires are grounded.
- <a> If there are problems with the wiring, repair the problems that you find, and do the Repair Confirmation at the end of this task.
- If there are no problems with the wiring, then continue the Fault Isolation.
- d) Do these steps to replace the R AFT FUEL BST PMP GFI CTRL RLY, K28242.

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<1> Open these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

<2> Replace the R AFT FUEL BST PMP GFI CTRL RLY, K28242.

<3> Close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

<4> Do the Main Tank Fuel Boost Pump Ground Fault Interrupter - Operational Test, AMM TASK 28-22-00-710-803.

<a> If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

2) If the RESET button on the R AFT FUEL BST PMP GFI CTRL RLY, K28242, has not come up, then continue the Fault Isolation.

(b) Replace the R PUMPS AFT Switch, S10, on the P5 Overhead Panel (WDM 28-22-22). This is the task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.

1) Push the R PUMPS AFT Switch to the ON position.

NOTE: Let the pump run for 15 seconds.

2) Push the R PUMPS AFT Switch to the OFF position.

3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

4) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

(c) Replace the Right Aft Boost Pump, M28202. These are the tasks:

- Boost Pump Motor-Impeller - Removal, AMM TASK 28-22-05-000-801
- Boost Pump Motor-Impeller - Installation, AMM TASK 28-22-05-400-801

1) Push the R PUMPS AFT Switch to the ON position.

NOTE: Let the pump run for 15 seconds.

2) Push the R PUMPS AFT Switch to the OFF position.

3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

4) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

(d) Do these steps to check the relay control wiring (WDM 28-22-22):

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- 1) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- 2) Remove the FUEL JETTISON Panel, M28001, on the P5 Overhead Panel and remove the connector, DM28001B.
- 3) Make sure there is continuity between pin 23 of connector, DM28001B and structure ground.
- 4) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- 5) Do a check for 28V DC at pin 24 on connector, DM28001B.
- 6) Repair the wiring.
- 7) Install connector, DM28001B, and install the FUEL/FUEL JETTISON Panel, M28001.
- 8) Push the R PUMPS AFT Switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- 9) Push the R PUMPS AFT Switch to the OFF position.
- 10) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

- (2) If the pump operates correctly (green box is illuminated and pressure is shown), then the problem is in the indication circuit. Do these steps:

- (a) Do a check of the ELMS Signal Interface Unit 2 (SIU2), M24509, in the Right Power Management Panel (RPMP), P210. This is the task: Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Push the R PUMPS AFT Switch to the ON position.

NOTE: Let the pump run for 15 seconds.

- 2) Push the R PUMPS AFT Switch to the OFF position.
- 3) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- 4) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation.

- (b) Do these steps to check the relay indication wiring (WDM 28-22-22):

- 1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- 2) Remove the R AFT FUEL BST PMP GFI CTRL RLY, K28242, from the RPMP, P210.

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- 3) Remove the Signal Interface Unit 2 (SIU2), M24509, from the RPMP, P210. This is the task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 4) Do a wiring resistance check for 18 k ohms between pin 80 of connector, DM24509C, on the Signal Interface Unit 2 (SIU2), M24509, and terminal A1 of the socket of the R AFT FUEL BST PMP GFI CTRL RLY, on the RPMP, P210.
- 5) Repair the wiring.
- 6) Install the ELMS SIU2, M24509, in the RPMP, P210. This is the task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- 7) Install the R AFT FUEL BST PMP GFI CTRL RLY, K28242, on the RPMP, P210.
- 8) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- 9) Push the R PUMPS AFT Switch to the ON position.
NOTE: Let the pump run for 15 seconds.
- 10) Push the R PUMPS AFT Switch to the OFF position.
- 11) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.

C. Repair Confirmation

- (1) Do a check to make sure the RESET button of the R AFT FUEL BST PMP GFI CTRL RLY, K28242, has not come up.
 - (a) If the RESET button has come up, then do these steps to restore power to the Boost Pump.

NOTE: A white line should display on the side of the button if it has come up.

- 1) Make sure the R PUMPS AFT Switch is in the OFF position.
- 2) Open these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- 3) Push the RESET button on the R AFT FUEL BST PMP GFI CTRL RLY, K28242, and make sure the RESET button stays in.
- 4) Close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	27	C28300	R AFT FUEL BOOST PUMP
K	11	C28609	R AFT FUEL BOOST PUMP CTRL

- (2) Push the R PUMPS AFT Switch to the ON position.
NOTE: Let the Pump run for 15 seconds.
- (3) Push the R PUMPS AFT Switch to the OFF position.

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- (4) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the problem.
- (5) If the pump does not operate correctly or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue at the subsequent step.

———— **END OF TASK** ————

900. Fuel Remaining in the Center Tank After Landing

A. Description

- (1) During flight, fuel from the center tank is used until the fuel level drops below the inlet of the center tank pumps. After a sufficient quantity of fuel is used from the main tanks, the fuel scavenge system is activated to pump out all remaining fuel from the center tank. If fuel remains in the center tank after landing, this procedure does a check for blockage in the fuel scavenge system.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- (2) The fuel scavenge system operates by motive flow from the jettison pumps. Faults related to the jettison pumps should be corrected before continuing with troubleshooting.

ARO 005-010 POST SB 777-28-0083 REVISION 1

- (3) The fuel scavenge system is inhibited when the jettison nozzle valves are open. Faults related to the jettison nozzle valves should be corrected before continuing with troubleshooting.

ARO ALL

B. Possible Causes

- (1) Ice and other debris can block the fuel scavenge system components.

NOTE: Intermittent failures of the fuel scavenge system can occur because of environmental and fuel tank conditions. If the fault is intermittent, the fault will usually occur on one flight and then not occur on the subsequent flight. If data shows that the fault is intermittent, no maintenance is required. If necessary confirm blockage, by checking the applicable components for debris.

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

- (2) If there is an excessive reserve fuel load, it is possible that fuel may remain in the center tank after landing. The center tank override/jettison pumps supply fuel until the fuel level drops below the inlet pickups. Fuel is then supplied from the main tanks. The fuel scavenge system is activated once there is sufficient space in the main tanks. The fuel scavenge pumps operate at a much slower fuel flow rate than compared to either the center tank override/jettison pumps or the fuel burn rate from the main tanks. On shorter flights with excessive reserve fuel loads, it is possible that the fuel scavenge will not complete before the top of descent.

NOTE: If there was an excessive reserve fuel load, there is no maintenance action necessary.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- (3) If there is an excessive reserve fuel load, it is possible that fuel may remain in the center tank after landing. The center tank override/jettison pumps supply fuel until the fuel level drops below the inlet pickups. Fuel is then supplied from the main tanks. The fuel scavenge system is activated 45 minutes after the override/jettison are turned off. Fuel is then scavenged for four hours.

NOTE: If there was an excessive reserve fuel load, there is no maintenance action necessary.

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ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083 (Continued)

- (4) If the jettison system was operated in flight, it is possible that fuel may remain in the center tank after landing. The center tank scavenge is not automatically operated after fuel jettison. The center tank override/jettison pumps must be cycled on and then turned off to continue center tank fuel scavenge.

ARO ALL

C. Fault Isolation Procedure

- (1) Determine if the fault was intermittent:
 - (a) If the fault was intermittent, no maintenance is necessary.
 - (b) If the fault was not intermittent or data is unavailable, continue with the fault isolation.
- (2) Do these steps to find if there is water in the center tank:

NOTE: Water ingested by the fuel scavenge inlet can freeze and block the fuel scavenge system.

 - (a) If the ambient temperature is above freezing, wait a sufficient time for any ice to melt.
 - (b) Let the water settle to the bottom of the tank.

NOTE: Water sinks in fuel at a rate of one foot per hour.
 - (c) Do this task: Fuel Tank Sump Drain Valve - Water Removal/Sampling, AMM TASK 12-11-02-680-801.
- (3) Do the repair confirmation at the end of the task.
 - (a) If the repair confirmation does not pass, continue with the fault isolation.
 - (b) If the repair confirmation passes, the fault has been corrected.

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

- (4) Do these steps to do a check of the fuel scavenge jet pumps:
 - (a) Do the fuel scavenge jet pump nozzle assembly removal section of this task: Fuel Scavenge Jet Pump - Removal, AMM TASK 28-22-12-000-801.
 - (b) Make sure there is no debris or unwanted material in the jet pump nozzle assembly.
 - (c) Do the fuel scavenge jet pump nozzle assembly section of this task: Fuel Scavenge Jet Pump - Installation, AMM TASK 28-22-12-400-801.
- (5) If debris was found blocking the fuel scavenge jet pump nozzle, do the Repair Confirmation procedure at the end of the task.
- (6) If no debris was found blocking the fuel scavenge jet pump nozzle, continue with the fault isolation.

ARO 001-006

- (7) Do this task: Water Scavenge Jet Pump Check, AMM TASK 28-22-13-200-801.
- (8) If debris was found blocking the water scavenge jet pump nozzle, do the Repair Confirmation procedure at the end of the task.
- (9) If no debris was found blocking the water scavenge jet pump nozzle, continue with the fault isolation.

ARO ALL

- (10) Do these steps to do a check of the center tank components for blockage:
 - (a) Do this task: Pressure Defueling, AMM TASK 28-26-00-650-801.

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WARNING

OBEY THE PRECAUTIONS FOR PURGING AND FUEL TANK ENTRY. IF YOU DO NOT OBEY THE PRECAUTIONS, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Do this task: Purging and Fuel Tank Entry, AMM TASK 28-11-00-010-801.

(c) Do these steps to get access to the applicable area of the center tank:

1) To remove these access doors, do this task:

Center Tank Access Door - Removal, AMM TASK 28-11-02-000-801

<u>Number</u>	<u>Name/Location</u>
139AZ	Center Wing Access Door
531AB	Access Door
631AB	Access Door

2) Go into the center fuel tank.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

(d) Do these steps to do a check of the fuel scavenge jet pumps:

- 1) Do the fuel scavenge jet pump nozzle assembly removal section of this task: Fuel Scavenge Jet Pump - Removal, AMM TASK 28-22-12-000-801.
- 2) Make sure there is no debris present in the jet pump nozzle assembly.
- 3) Do the fuel scavenge jet pump nozzle assembly section of this task: Fuel Scavenge Jet Pump - Installation, AMM TASK 28-22-12-400-801.

ARO ALL

(e) Find the inlet screen for the fuel scavenge.

- 1) Do a check of the inlet screen for blockage

ARO 001-006

(f) Find the water scavenge inlet screens.

- 1) Do a check of the inlet screens for blockage

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

(g) Find the inlet shutoff valves near the rear spar

- 1) Do a check of the area for debris that could block the operation of the shutoff valve.
- 2) Make sure the shutoff valve has free movement.

ARO ALL

(h) Visually examine the fuel scavenge tubing to make sure it is tightly and correctly attached.

- 1) Adjust the installation of the tubes which are not correctly attached.

(i) To install these access doors, do this task:

Center Tank Access Door - Installation, AMM TASK 28-11-02-400-801.

<u>Number</u>	<u>Name/Location</u>
531AB	Access Door
631AB	Access Door

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- (11) If debris was found blocking any of the center tank components or if the fuel scavenge system tubing was loose or incorrectly attached, do the Repair Confirmation procedure at the end of the task.
- (12) If no debris was found blocking any of the center tank components or if the fuel scavenge system tubing was not loose or incorrectly attached, continue with the fault isolation.

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

- (13) Do these steps to do a check of the outlet float operated shutoff valves:
 - (a) Do this task: Pressure Defueling, AMM TASK 28-26-00-650-801.



WARNING

OBEY THE PRECAUTIONS FOR PURGING AND FUEL TANK ENTRY. IF YOU DO NOT OBEY THE PRECAUTIONS, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Do this task: Purging and Fuel Tank Entry, AMM TASK 28-11-00-010-801.
- (c) Do these steps to get access to the applicable outlet float operated shutoff valve:
 - 1) To remove these access doors, do this task:

<u>Number</u>	<u>Name/Location</u>
541DB	Access Door
641DB	Access Door

Main Tank Access Door Removal, AMM TASK 28-11-01-000-801.

- 2) Find the shutoff valve installed near the rear spar
- (d) Do a check of the area for debris that could block the operation of the shutoff valve.
- (e) Make sure the shutoff valve has free movement.
- (f) To install these access doors, do this task:

<u>Number</u>	<u>Name/Location</u>
541DB	Access Door
641DB	Access Door

Main Tank Access Door Installation, AMM TASK 28-11-01-400-801.

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- (14) Do the Repair Confirmation procedure below.

D. Repair Confirmation

- (1) Do this task to do a check of the fuel flow rate of the fuel scavenge system: Fuel Scavenge System - Functional Test, AMM TASK 28-22-00-720-802 or Fuel Scavenge System - Functional Test, AMM TASK 28-22-00-720-805.

————— END OF TASK —————

901. FUEL SCAVENGE SYS - EICAS MESSAGE

A. Description

- (1) This task is for this EICAS Advisory Message:
 - (a) FUEL SCAVENGE SYS

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- (2) During flight, fuel from the center tank is used until the fuel level drops below the inlet of the center tank pumps. After a sufficient quantity of fuel is used from the main tanks, the fuel scavenge system is activated to pump out all remaining fuel from the center tank. If fuel remains in the center tank after landing, this procedure does a check for blockage in the fuel scavenge system.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- (3) The fuel scavenge system operates by motive flow from the jettison pumps. Problems related to the jettison pumps should be corrected before continuing with troubleshooting.

ARO 005-010 POST SB 777-28-0083 REVISION 1

- (4) The fuel scavenge system is inhibited when the jettison nozzle valves are open. Problems related to the jettison nozzle valves should be corrected before continuing with troubleshooting.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- (5) If the jettison system was operated in flight, the fuel scavenge system will be inhibited for the remainder of the flight.
- (6) If the jettison system was operated in flight, no further maintenance is necessary.

ARO ALL

- (7) The fuel scavenge system message occurs when:
- (a) The left or right main tank quantity is less than 18,000 lb (8165 kg) and center wing tank is greater than 500 lb (227 kg) for 15 minutes.

B. Possible Causes

- (1) Ice and other debris can block the fuel scavenge system components.

NOTE: Intermittent failures of the fuel scavenge system can occur because of environmental and fuel tank conditions. This is a known problem and is being investigated. If the problem is intermittent, the problem will usually occur on one flight and then not occur on the subsequent flight.

C. Fault Isolation Procedure

- (1) Do a check to make sure that data is available for previous flights.
- (a) If data is available, find if the problem occurred on previous consecutive flights that used center tank fuel and check the remaining quantity of fuel in the center tank after landing.
- NOTE: The fuel scavenge system message clears with left or right main tank fuel quantity above 18,000 lb (8165 kg), or center fuel tank quantity below 500 lb (227 kg). If fuel in the center tank does not decrease below 500 lb (227 kg) and the next flight does not require more than 19,000 lb (8618 kg) in each main tank, the fuel scavenge system message will display at engine start or during taxi. Fuel in the center tank can be scavenged to the main tanks by operating all four main fuel boost pumps.
- 1) If the remaining quantity of fuel in the center tank after landing was more than 2400 lbs (1100 kg), verify the number of consecutive flights for which the problem occurred.
- NOTE: Scavenging did not occur. The problem can be because of a mechanical failure of the fuel scavenge system.
- a) If the problem occurred for two consecutive flights, continue the Fault Isolation.
- b) If the problem did not occur for two consecutive flights, no maintenance is necessary.

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- 2) If the remaining quantity of fuel in the center tank after landing was less than 2400 lbs (1100 kg), verify the number of consecutive flights for which the problem occurred.

NOTE: Partial scavenging occurred intermittently or because of a mechanical problem that limited the performance of the fuel scavenge system.

- a) If the problem occurred for four consecutive flights, continue the Fault Isolation.
- b) If the problem did not occur for four consecutive flights, no maintenance is necessary.
- (b) If data is not available, continue the Fault Isolation.
- (2) Do these steps to find if there is water in the center tank:

NOTE: Water ingested by the fuel scavenge inlet can freeze and block the fuel scavenge system.

 - (a) If the ambient temperature is above freezing, wait a sufficient time for any ice to melt.
 - (b) Let the water settle to the bottom of the tank.

NOTE: Water sinks in fuel at a rate of one foot per hour.
 - (c) Do this task: Fuel Tank Sump Drain Valve - Water Removal/Sampling, AMM TASK 12-11-02-680-801.
- (3) Do the Repair Confirmation at the end of this task.
 - (a) If the Repair Confirmation does not pass, continue the Fault Isolation.
 - (b) If the Repair Confirmation passes, the problem has been corrected.

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

- (4) Do these steps to do a check of the fuel scavenge jet pumps:
 - (a) Do the fuel scavenge jet pump nozzle assembly removal section of this task: Fuel Scavenge Jet Pump - Removal, AMM TASK 28-22-12-000-801.
 - (b) Make sure there is no debris present in the jet pump nozzle assembly.
 - (c) Do the fuel scavenge jet pump nozzle assembly installation section of this task: Fuel Scavenge Jet Pump - Installation, AMM TASK 28-22-12-400-801.
- (5) If debris was found blocking the fuel scavenge jet pump nozzle, do the Repair Confirmation at the end of this task.
- (6) If no debris was found blocking the fuel scavenge jet pump nozzle, continue the Fault Isolation.

ARO 001-006

- (7) Do this task: Water Scavenge Jet Pump Check, AMM TASK 28-22-13-200-801.
- (8) If debris was found blocking the water scavenge jet pump nozzle, do the Repair Confirmation at the end of this task.
- (9) If no debris was found blocking the water scavenge jet pump nozzle, continue the Fault Isolation.

ARO ALL

- (10) Do these steps to do a check of the center tank components for blockage:
 - (a) Do this task: Pressure Defueling, AMM TASK 28-26-00-650-801.

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WARNING

OBEY THE PRECAUTIONS FOR PURGING AND FUEL TANK ENTRY. IF YOU DO NOT OBEY THE PRECAUTIONS, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Do this task: Purging and Fuel Tank Entry, AMM TASK 28-11-00-010-801.

(c) Do these steps to get access to the applicable area of the center tank:

1) To remove these access panels, do this task:

Center Tank Access Door - Removal, AMM TASK 28-11-02-000-801

<u>Number</u>	<u>Name/Location</u>
139AZ	Center Wing Access Door
531AB	Access Door
631AB	Access Door

2) Go into the center fuel tank.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

(d) Do these steps to do a check of the fuel scavenge jet pumps:

- 1) Do the fuel scavenge jet pump nozzle assembly removal section of this task: Fuel Scavenge Jet Pump - Removal, AMM TASK 28-22-12-000-801.
- 2) Make sure there is no debris present in the jet pump nozzle assembly.
- 3) Do the fuel scavenge jet pump nozzle assembly installation section of this task: Fuel Scavenge Jet Pump - Installation, AMM TASK 28-22-12-400-801.

ARO ALL

(e) Find the inlet screen for the fuel scavenge.

- 1) Do a check of the inlet screen for blockage

ARO 001-006

(f) Find water scavenge inlet screens.

- 1) Do a check of the inlet screens for blockage

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

(g) Find the inlet shutoff valves near the rear spar.

- 1) Do a check of the area for debris that could block the operation of the shutoff valve.
- 2) Make sure the shutoff valve has free movement.

ARO ALL

(h) Visually examine the fuel scavenge tubing to make sure it is tightly and correctly attached.

- 1) Adjust the installation of the tubes which are not correctly attached.

(i) To install these access panels, do this task:

Center Tank Access Door - Installation, AMM TASK 28-11-02-400-801.

<u>Number</u>	<u>Name/Location</u>
531AB	Access Door
631AB	Access Door

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- (11) If debris was found blocking any of the center tank components or if the fuel scavenge system tubing was loose or incorrectly attached, do the Repair Confirmation at the end of this task.
- (12) If no debris was found blocking any of the center tank components or if the fuel scavenge system tubing was not loose or incorrectly attached, continue with the Fault Isolation.

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

- (13) Do these steps to do a check of the outlet float operated shutoff valves:
 - (a) Do this task: Pressure Defueling, AMM TASK 28-26-00-650-801.



OBEY THE PRECAUTIONS FOR PURGING AND FUEL TANK ENTRY. IF YOU DO NOT OBEY THE PRECAUTIONS, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Do this task: Purging and Fuel Tank Entry, AMM TASK 28-11-00-010-801.
- (c) Do these steps to get access to the applicable outlet float operated shutoff valve:

- 1) To remove these access panels, do this task:

<u>Number</u>	<u>Name/Location</u>
541DB	Access Door
641DB	Access Door

Main Tank Access Door Removal, AMM TASK 28-11-01-000-801.

- 2) Find the shutoff valve installed near the rear spar.
- (d) Do a check of the area for debris that could block the operation of the shutoff valve.
- (e) Make sure the shutoff valve has free movement.
- (f) To install these access panels, do this task:

<u>Number</u>	<u>Name/Location</u>
541DB	Access Door
641DB	Access Door

Main Tank Access Door Installation, AMM TASK 28-11-01-400-801.

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- (14) Do the Repair Confirmation below.

D. Repair Confirmation

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

- (1) Do this task to do a check of the fuel flow rate of the fuel scavenge system: Abbreviated Fuel Scavenge System - Functional Test, AMM TASK 28-22-00-720-804.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- (2) Do this task to do a check of the fuel scavenge system: Fuel Scavenge System - Functional Test, AMM TASK 28-22-00-720-805.

————— END OF TASK —————

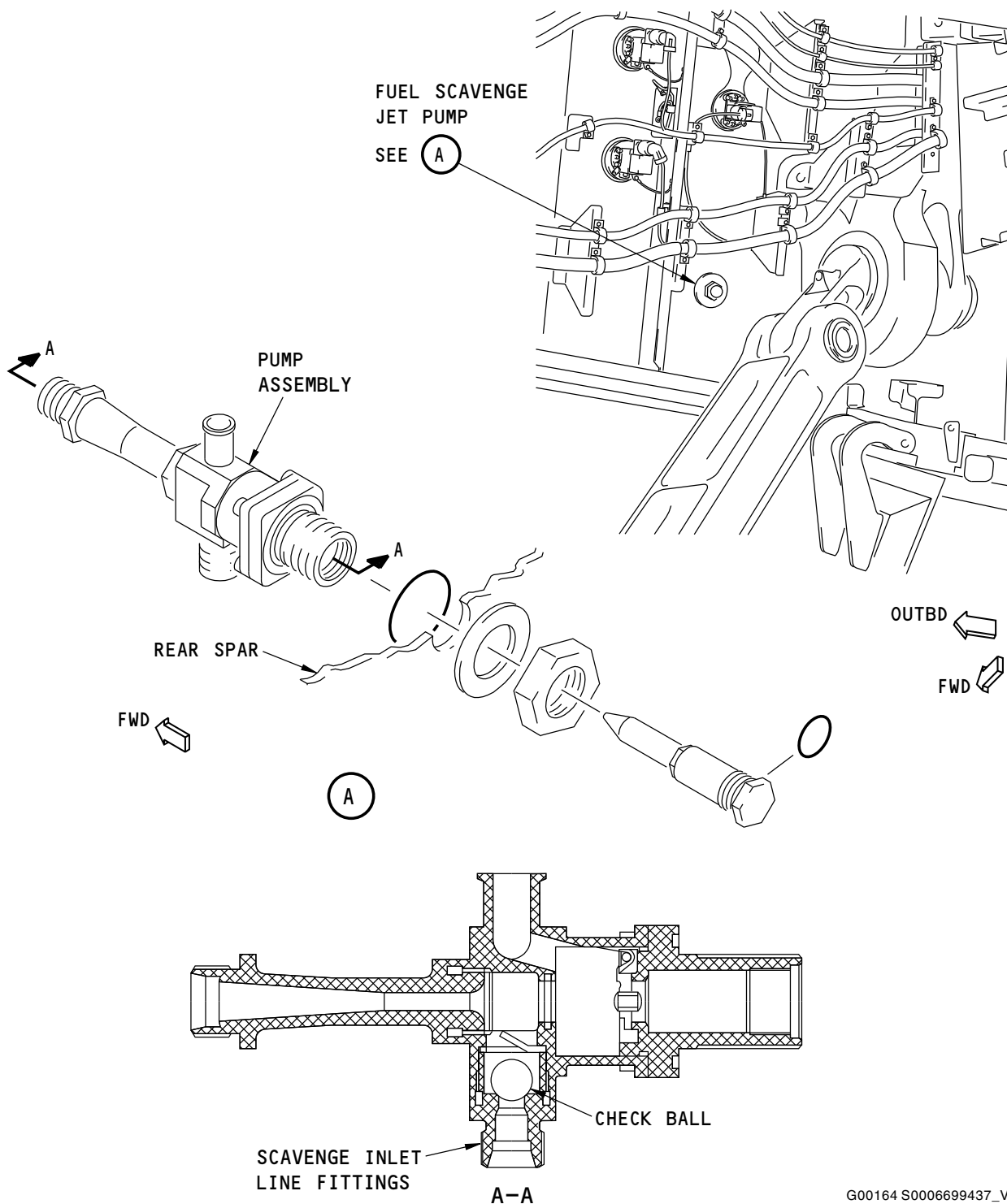
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Fuel Scavenge Jet Pump
Figure 301/28-22-00-990-801 (Sheet 1 of 2)

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ARO 001-004 PRE SB 777-28-0078; ARO 005-010
PRE SB 777-28-0083

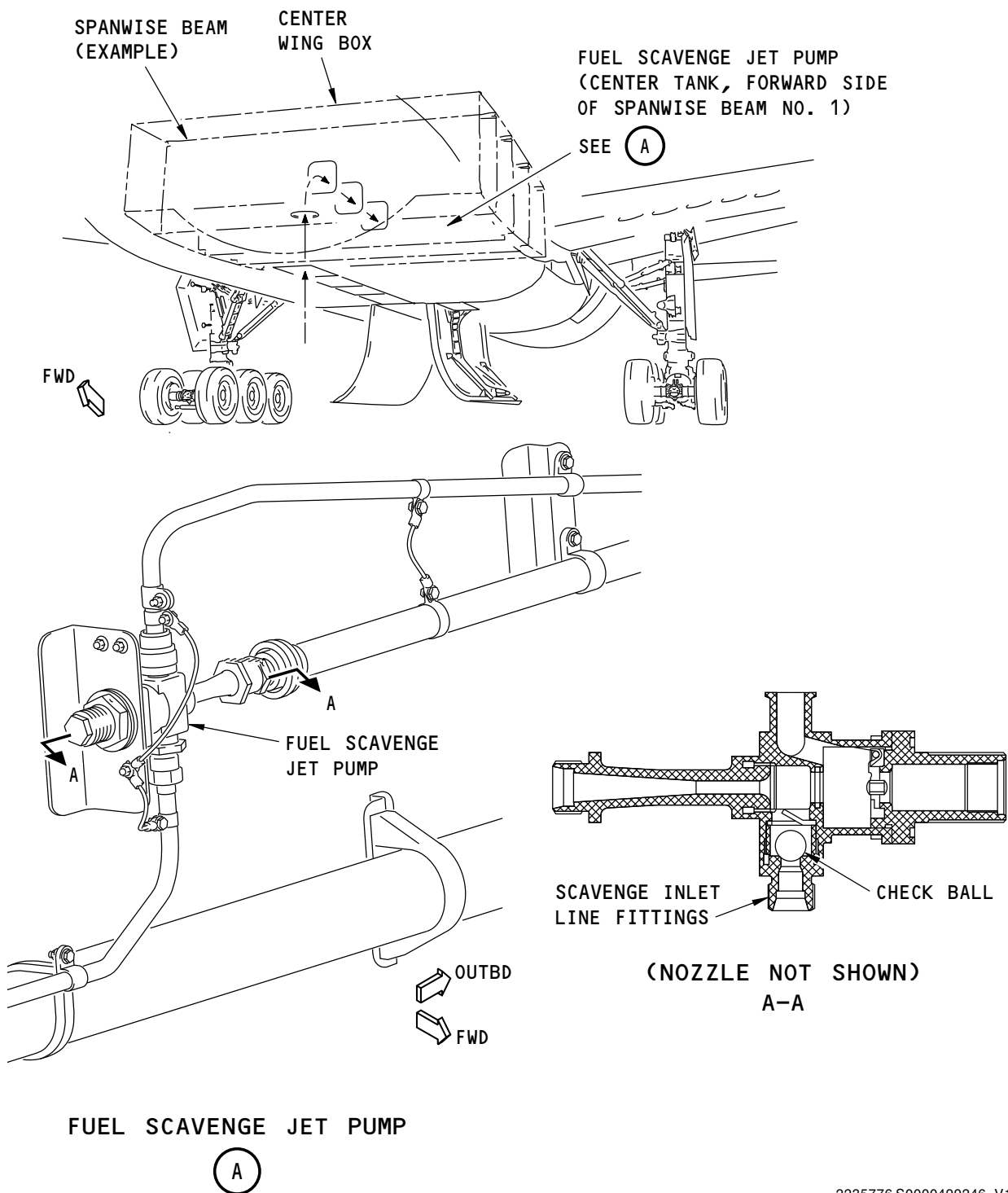
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Fuel Scavenge Jet Pump
Figure 301/28-22-00-990-801 (Sheet 2 of 2)

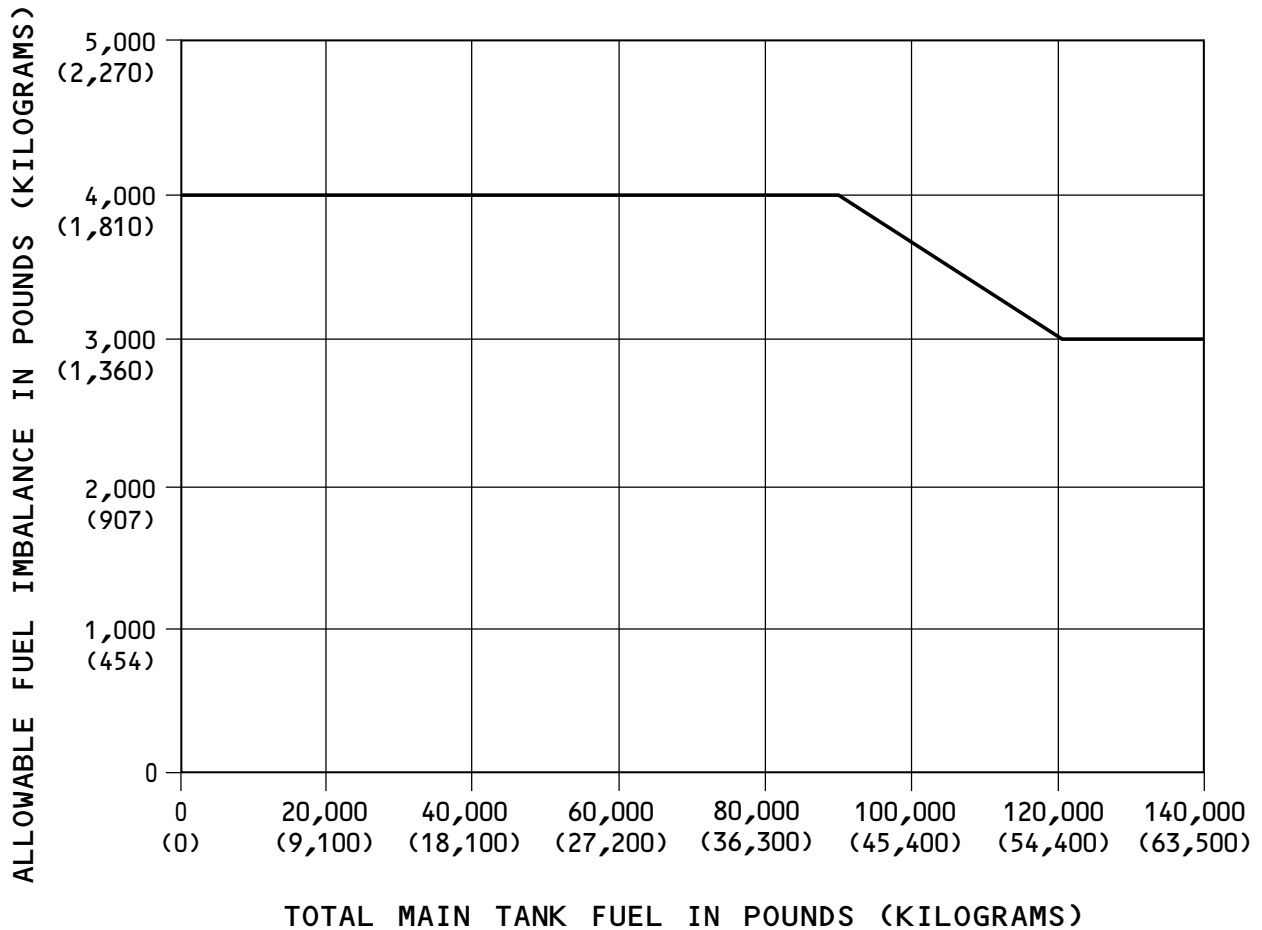
EFFECTIVITY
ARO 011-999; ARO 001-004 POST SB 777-28-0078;
ARO 005-010 POST SB 777-28-0083

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1957663 S0000374436_V1

Allowable Fuel Imbalance Versus Total Main Tank Fuel
Figure 302/28-22-00-990-802

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801. APU Fuel Shutoff Valve (Signal Is Invalid) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43060.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:
 - (a) Monitor the maintenance message on the maintenance access terminal (MAT).



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (b) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.
NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.
- (c) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then do the Fault Isolation procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the ON or OFF positions, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check the wiring (WDM 28-25-11):
 - (a) Lower the right overhead circuit breaker panel P11 to get access to the connector DM23217G on the right overhead panel cardfile (OPC) P61.
 - (b) Remove the connector DM23217N from the right OPC P61.
 - (c) Do a continuity check between these pins on connector DM23217N:

DM23217N

pin B20

DM23217N

pin B19

- (d) Repair the wiring.
- (e) Install the connector DM23217N to the right OPC P61.
- (f) Close the right overhead circuit breaker panel P11.



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (g) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.
NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the ON or OFF positions, you corrected the fault.

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- (i) If the MAT shows ACTIVE for the maintenance message when the switch is in the ON or OFF positions, then continue.
- (2) Replace the right overhead cardfile chassis, M23217.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,

Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (a) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.

NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.

- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the ON or OFF positions, you corrected the fault.

————— **END OF TASK** —————

810. Fuel Valve APU (EICAS Status Message with No Maintenance Message) - Fault Isolation

A. Initial Evaluation

- (1) If the EICAS status message FUEL VALVE APU shows with no correlated maintenance message, then do these steps:



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (a) Put the APU Start switch, on the overhead panel P5, to the ON and OFF positions two times.

NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.

- (b) If the EICAS status message FUEL VALVE APU continues to show, do these steps:

- 1) Go to the Maintenance Access Terminal (MAT) and look for ATA 28 maintenance messages that correlate to the APU fuel valve.

- 2) If there is a maintenance message that correlates to the EICAS status message FUEL VALVE APU, do the applicable task.

- 3) If no maintenance messages show that correlate to the EICAS status message FUEL VALVE APU, put the APU Start switch, on the overhead panel P5, to the ON and OFF positions two more times.

NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.

- 4) If the EICAS status message FUEL VALVE APU continues to show, then refer to the maintenance message 28-19423 for the components that could be the possible cause (FIM 28-Maintenance Message Index).

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- (c) If the EICAS status message FUEL VALVE APU does not show, there was an intermittent fault.

————— END OF TASK —————

811. APU Fuel Shutoff Valve (Failed Open/Closed) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 28-19423, 28-19424.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these steps:



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (a) Put the APU Start switch, on the overhead panel P5, to the ON and OFF positions two times.
- NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.
- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (c) If the MAT shows NOT ACTIVE for the maintenance message, there was an intermittent fault.
- 1) If there was an intermittent fault, a fault in the valve actuator can be the cause.
- NOTE: The replacement of the valve actuator is an optional step that can help decrease repeated intermittent faults.
- a) To decrease repeated intermittent faults, it is recommended to replace the valve actuator:
- <1> Do this task: APU Fuel Shutoff Valve Actuator - Removal, AMM TASK 28-25-02-000-802.
- <2> Do this task: APU Fuel Shutoff Valve Actuator - Installation, AMM TASK 28-25-02-400-802.

C. Fault Isolation Procedure

- (1) Replace the actuator for the APU fuel shutoff valve.

These are the tasks:

APU Fuel Shutoff Valve Actuator - Removal, AMM TASK 28-25-02-000-802,

APU Fuel Shutoff Valve Actuator - Installation, AMM TASK 28-25-02-400-802.

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CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (a) Put the APU Start switch to the ON and OFF positions two times.
NOTE: Wait 15 seconds each time the switch position is changed.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Put one person at the actuator for the APU fuel shutoff valve. To get access to the actuator refer to (AMM TASK 28-25-02-000-802).



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (3) Put the APU start switch, on the overhead panel P5, to the ON position.
- (4) Make sure the manual override handle, for the APU fuel shutoff valve actuator, moves to the OPEN position.
- (5) Put the APU START switch to the CLOSED position.
- (6) Make sure the manual override handle moves to the CLOSED position.
- (7) If the manual override handle on the actuator operates correctly, do these steps:
 - (a) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24513, installed in the standby power management panel (SPMP) P310.
This is the task:
Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (b) Put the APU START switch to the ON and OFF positions two times.
NOTE: Wait 15 seconds each time the switch position is changed.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (e) Put the APU START switch to the ON and OFF positions two times.
NOTE: Wait 15 seconds each time the switch position is changed.

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- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (g) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (h) Do a check of the valve indication wiring (WDM 28-25-11):
 - 1) Repair the wiring problems that you find.



DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (i) Put the APU START switch to the ON and OFF positions two times.
NOTE: Wait 15 seconds each time the switch position is changed.
- (j) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (k) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (8) If the manual override handle on the actuator does not operate correctly, do these steps:
 - (a) Do a check of the valve control wiring (WDM 28-25-11):
 - 1) Repair the wiring problems that you find.



DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (b) Put the APU START switch to the ON and OFF positions two times.
NOTE: Wait 15 seconds each time the switch position is changed.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

————— **END OF TASK** —————

812. APU Fuel Isolation Valve (not in commanded position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-19425.

B. Initial Evaluation

- (1) Put the airplane in the air mode for this procedure. To put it in the air mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.
- (2) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (b) Put the airplane in the air mode. To put it in the air mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.
- (c) Make sure all of the fuel pump switches, on the overhead panel P5, are in the OFF position.
- (d) Make sure the left and right engines START switches are in the NORMAL position.
- (e) Make sure the APU is off or do these steps:
 - 1) Open these circuit breakers and install safety tags:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (f) Put the L FUEL CONTROL switch, on the aisle stand P10, to the RUN and CUTOFF position two times.
NOTE: Wait 15 seconds each time the switch position is changed.
- (g) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (h) If the MAT shows NOT ACTIVE for the maintenance message, there was an intermittent fault.
 - 1) Put the airplane in the ground mode. To put it in the ground mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.
 - 2) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

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Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
B	2	C28604	L FWD FUEL BOOST PUMP CTRL
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- 3) If there was an intermittent fault, a fault in the valve actuator can be the cause.

NOTE: The replacement of the valve actuator is an optional step that can help decrease repeated intermittent faults.

- a) To decrease repeated intermittent faults, it is recommended to replace the valve actuator:
- <1> Do this task: APU Isolation Valve Actuator - Removal, AMM TASK 28-25-05-000-802.
 - <2> Do this task: APU Isolation Valve Actuator - Installation, AMM TASK 28-25-05-400-802.

C. Fault Isolation Procedure

- (1) Replace the actuator V28031, for the APU fuel isolation valve.

These are the tasks:

APU Isolation Valve Actuator - Removal, AMM TASK 28-25-05-000-802,

APU Isolation Valve Actuator - Installation, AMM TASK 28-25-05-400-802.

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (b) Put the airplane in the air mode. To put it in the air mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.
- (c) Make sure all of the fuel pump switches, on the overhead panel P5, are in the OFF position.
- (d) Make sure the left and right engines START switches are in the NORMAL position.
- (e) Put the L FUEL CONTROL switch, on the aisle stand P10, to the RUN and CUTOFF position two times.

NOTE: Wait 15 seconds each time the switch position is changed.

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

- 1) Put the airplane in the ground mode. To put it in the ground mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.
- 2) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
B	2	C28604	L FWD FUEL BOOST PUMP CTRL
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (g) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do a check of the ELMS Signal Interface Unit 1 (SIU 1), M24512, installed in the standby power management panel (SPMP) P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (b) Put the airplane in the air mode. To put it in the air mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.
- (c) Make sure all of the fuel pump switches, on the overhead panel P5, are in the OFF position.
- (d) Make sure the left and right engines START switches are in the NORMAL position.

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- (e) Put the L FUEL CONTROL switch, on the aisle stand P10, to the RUN and CUTOFF position two times.

NOTE: Wait 15 seconds each time the switch position is changed.

- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- 1) Put the airplane in the ground mode. To put it in the ground mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.
 - 2) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
B	2	C28604	L FWD FUEL BOOST PUMP CTRL
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (g) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do this check of the valve control wiring:
- (a) Remove the APU ISLN VALVE relay K28018, on the panel SPMP P310 (WDM 28-25-12).
 - (b) Disconnect the electrical connector DV28031 from the APU fuel isolation valve actuator V28031 (AMM TASK 28-25-05-000-802).
 - (c) Remove the SIU 1, M24512, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - (d) Do a continuity check between these pins on connector DK28018 and connector DV28031:

DK28018	DV28031
pin B3	pin 5
pin B1	pin 2

- (e) Do a continuity check between these pins on connector DM24512A and connector DV28031:

DM24512A	DV28031
pin 20	pin 2
pin 19	pin 3

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- (f) Repair the wiring (WDM 28-25-12).
- (g) Install the APU ISLN VALVE relay K28018, in the SPMP P310 (WDM 28-25-12).
- (h) Install the SIU 1, M24512, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (i) Install the electrical connector DV28031 to the APU fuel isolation valve actuator V28031 (AMM TASK 28-25-05-400-802).
- (j) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (k) Put the airplane in the air mode. To put it in the air mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.
- (l) Make sure all of the fuel pump switches, on the overhead panel P5, are in the OFF position.
- (m) Make sure the left and right engines START switches are in the NORMAL position.
- (n) Put the L FUEL CONTROL switch, on the aisle stand P10, to the RUN and CUTOFF position two times.
NOTE: Wait 15 seconds each time the switch position is changed.
- (o) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 1) Put the airplane in the ground mode. To put it in the ground mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.
 - 2) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
B	2	C28604	L FWD FUEL BOOST PUMP CTRL
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

————— END OF TASK —————

813. APU Fuel Isolation Valve Control Relay (not in commanded position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-13120.

B. Initial Evaluation

- (1) Put the airplane in the air mode for this procedure. To put it in the air mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.
- (2) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (b) Put the airplane in the air mode (AMM TASK 32-09-00-860-801).
- (c) Make sure all of the fuel pump switches, on the overhead panel P5, are in the OFF position.
- (d) Make sure the left and right engines START switches are in the NORMAL position.
- (e) Make sure the APU is off or do these steps:
- 1) Open these circuit breakers and install safety tags:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

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Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (f) Put the L FUEL CONTROL switch, on the aisle stand P10, to the RUN and CUTOFF position two times.

NOTE: Wait 15 seconds each time the switch position is changed.

- (g) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (h) If the MAT shows NOT ACTIVE for the maintenance message, there was an intermittent fault.
- 1) Put the airplane in the ground mode (AMM TASK 32-09-00-860-801).
 - 2) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
B	2	C28604	L FWD FUEL BOOST PUMP CTRL
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

C. Fault Isolation Procedure

- (1) Replace the APU isolation valve control relay, K28018 (WDM 28-25-12).

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (b) Put the airplane in the air mode (AMM TASK 32-09-00-860-801).

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- (c) Make sure all of the fuel pump switches, on the overhead panel P5, are in the OFF position.
- (d) Make sure the left and right engine START switches are in the NORMAL position.
- (e) Put the L FUEL CONTROL switch, on the aisle stand P10, to the RUN and CUTOFF position two times.

NOTE: Wait 15 seconds each time the switch position is changed.

- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 1) Put the airplane in the ground mode (AMM TASK 32-09-00-860-801).
 - 2) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
B	2	C28604	L FWD FUEL BOOST PUMP CTRL
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (g) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the ELMS Signal Interface Unit 1 (SIU 1), M24512, installed in the standby power management panel (SPMP) P310.

These are the tasks:

Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002,

Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

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- (b) Put the airplane in the air mode (AMM TASK 32-09-00-860-801).
- (c) Make sure all of the fuel pump switches, on the overhead panel P5, are in the OFF position.
- (d) Make sure the left and right engines START switches are in the NORMAL position.
- (e) Put the L FUEL CONTROL switch, on the aisle stand P10, to the RUN and CUTOFF position two times.
NOTE: Wait 15 seconds each time the switch position is changed.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 1) Put the airplane in the ground mode (AMM TASK 32-09-00-860-801).
 - 2) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
B	2	C28604	L FWD FUEL BOOST PUMP CTRL
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (g) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do a check of the relay control and indication wiring in the SPMP P310 (WDM 28-25-12):
 - (a) Repair the wiring problems that you find.
 - (b) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (c) Put the airplane in the air mode (AMM TASK 32-09-00-860-801).

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- (d) Make sure all of the fuel pump switches, on the overhead panel P5, are in the OFF position.
- (e) Make sure the left and right engines START switches are in the NORMAL position.
- (f) Put the L FUEL CONTROL switch, on the aisle stand P10, to the RUN and CUTOFF position two times.

NOTE: Wait 15 seconds each time the switch position is changed.

- (g) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 1) Put the airplane in the ground mode (AMM TASK 32-09-00-860-801).
 - 2) Remove the safety tags and close these circuit breakers:

Ground Service/Handling Power Panel, P320

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	9	C28301	L FWD FUEL BOOST PUMP GND SVCE

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C28307	L FWD FUEL BOOST PUMP

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP
B	2	C28604	L FWD FUEL BOOST PUMP CTRL
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (h) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) On the MAT, do this special function on the MAT: 24 ELMS Power Management Panel, Initiated P310 EU self test.
 - (a) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (5) Make sure the manual override handle on the APU fuel isolation valve goes to the OPEN, then CLOSED position when the APU selector switch is set to the ON, then OFF position.
 - (a) If the manual override handle on the APU fuel isolation valve goes to the OPEN, then CLOSED position when the APU selector switch is set to the ON, then OFF position and the MAT shows ACTIVE or LATCHED for the maintenance message, do the steps that follow:
 - 1) Install a replacement SIU 1, M24512, and repeat the functional test.

These are the tasks:
Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002,
Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

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- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, do a check of the current monitor (M24409) and also do a check of the wiring and connectors (WDM 33-41-11, WDM 24-61-31)
- (b) If the manual override handle on the APU fuel isolation valve goes to the OPEN, then CLOSED position when the APU selector switch is set to the ON, then OFF position and the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (6) If the manual override handle on the APU isolation valve does not go to the OPEN, then CLOSED position when the APU selector switch is set to the ON, then OFF position, do the steps that follow:
 - (a) Do a check of the position of the manual override handle on the APU fuel isolation valve.
 - (b) If the manual override handle on the APU fuel isolation valve is in a CLOSED position, do these steps:
 - 1) Do a check for power at relay K28018, pin X1 (WDM 28-25-12).
 - a) If power is not present, do a check for power at relay K28018, pin B2 and also do a check of the wiring and connections and repair as necessary.
 - 2) Set the APU selector switch to the ON position and do a check for a ground on K28018, pin X2.
 - a) If a ground is present, replace the APU isolation valve control relay, K28018.
 - b) If ground is not present, install a replacement SIU 1, M24512, and repeat the functional test.

These are the tasks:

Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002,

Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.

<1> If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

<2> If the MAT shows ACTIVE or LATCHED for the maintenance message, do a check of the wiring from K28018, pin X2 to the SIU 1, M24512, pin 17 and repair as necessary (WDM 28-25-12).

- (c) If the manual override handle on the APU fuel isolation valve is in a OPEN position, do these steps":

- 1) Install a replacement SIU 1, M24512, and repeat the functional test.

These are the tasks:

Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002,

Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.

- a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- b) If the MAT shows ACTIVE or LATCHED for the maintenance message, replace the APU isolation valve control relay, K28018 (WDM 28-25-12).

<1> If the MAT still shows ACTIVE or LATCHED for the maintenance message after you replace the relay K28018, do a check of the wiring from relay K28018, pin X2 to the SIU 1, M24512, pin 17 for a short circuit to ground and repair as necessary.

————— END OF TASK —————

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814. APU DC Fuel Pump (press low when pump commanded on) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-19426.

B. Initial Evaluation



DO NOT CLOSE A CIRCUIT BREAKER FOR A FUEL PUMP THAT OPENED (TRIPPED) UNTIL YOU CORRECT THE PROBLEM. THIS CONDITION CAN CAUSE A FIRE OR EXPLOSION.

28-AWL-17: CDCCL

- (1) Do not reset a circuit breaker that supplies power to the pump before you do this task.

NOTE: This problem can be caused by a short circuit in the pump wiring or a damaged circuit breaker.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

- (a) Look at the position of this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP

28-AWL-17: CDCCL

- (b) If this circuit breaker is open (tripped), do this task: APU DC Fuel Pump - Insulation Resistance Test, AMM TASK 28-25-00-760-801.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

- (c) If this circuit breaker is closed, then continue.

- (2) For this procedure, do this step:

- (a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (3) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.

- (4) If the MAT shows LATCHED for the maintenance message, then do these steps:

- (a) Make sure all of the fuel pump switches, on the overhead panel P5, are in the OFF position.

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CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (b) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.

NOTE: Wait 15 seconds each time the switch position is changed.

- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message, there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check the APU DC pump:

- (a) Get access to the APU DC fuel pump, installed on the rear spar of the left center fuel tank (AMM TASK 28-25-03-400-801).



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (b) Put the APU start switch, on the P5 overhead panel, to the ON position.
- (c) Listen to make sure the APU DC fuel pump operates.



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (d) Put the APU start switch, on the P5 overhead panel, to the OFF position.
- (2) If the APU DC fuel pump operates, replace the pressure switch S28010, for the APU DC fuel pump.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (a) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.

NOTE: Wait 15 seconds each time the switch position is changed.

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

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- 1) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) If the APU DC fuel pump does not operate, replace the APU DC fuel pump M28003.

These are the tasks:

APU DC Fuel Pump (Motor-Impeller) - Removal, AMM TASK 28-25-03-000-801,

APU DC Fuel Pump (Motor-Impeller) - Installation, AMM TASK 28-25-03-400-801.



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (a) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.
NOTE: Wait 15 seconds each time the switch position is changed.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 1) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Do a check of the ELMS Signal Interface Unit 1 (SIU 1), M24512, installed in the standby power management panel (SPMP) P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (a) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.
NOTE: Wait 15 seconds each time the switch position is changed.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 1) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (c) If the MAT shows ACTIVE or LATCHED the for the maintenance message, then continue.

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(5) Do a check of the wiring at the APU DC fuel pump M28003 (WDM 28-25-12).

(a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP

(b) Disconnect the electrical connector DM28003 from the APU DC fuel pump.

(c) Do a continuity check to make sure there is continuity between pin B, on the connector DM28003 and structure ground.

(d) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

(e) Put the APU Start switch to the ON position, on the Overhead Panel P5.

(f) Do a check for 28V DC power at pin A, on the connector DM28003.



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

(g) Put the APU Start switch to the OFF position, on the Overhead Panel P5.

(h) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP

(i) Repair the wiring problems that you find.

(j) Connect the electrical connector DM28003 to the APU DC fuel pump.

(k) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP

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CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (l) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.

NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.

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

- 1) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (n) If the MAT shows ACTIVE for the maintenance message, then continue.

- (6) Do these steps to check the indication wiring for the pressure switch S28010 (WDM 28-25-12):

- (a) Do these steps to do a check of the wiring between the pressure switch S28010 and the SIU 1, M24512, in the SPMP P310:

- 1) Remove the SIU 1, M24512, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 2) Disconnect the electrical connector DS28010 from the pressure switch.
- 3) Do a continuity check between pin 2 on connector DS28010 and structure ground.
- 4) Do this wiring check between these pins on connector DS28010 and connector DM24512C for the SIU 1, M24512 in the SPMP P310.

DS28010

pin 3

DM24512C

pin 24

- (b) Repair the wiring problems that you find.
- (c) Install the SIU 1, M24512, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (d) Install the connector DS28010 to the pressure switch.



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (e) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.

NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.

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

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- 1) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

————— **END OF TASK** —————

815. APU DC Fuel Pump (press high when pump commanded off) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-19427.

B. Initial Evaluation

- (1) For this procedure, do this step:
 - (a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (2) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure all of the fuel pump switches, on the overhead panel P5, are in the OFF position.



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (b) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.
NOTE: Wait 15 seconds each time the switch position is changed.
- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message, there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check the pressure switch:
 - (a) Get access to the FUEL MANAGEMENT maintenance page on the lower EICAS display.
 - (b) Disconnect the electrical connector DS28010 from the APU DC fuel pump pressure switch (AMM TASK 28-42-01-000-801).
 - (c) If the STATUS indication on the EICAS maintenance page shows NO PRESS for the APU DC PUMP, do a check of the electronic load management system (ELMS) Signal Interface Unit 1 (SIU 1) M24512, in the standby power management panel (SPMP) P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Connect the electrical connector DS28010 to the fuel pump pressure switch.

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DO NOT PUT THE APU START SWITCH TO THE START POSITION.
IF YOU PUT THE APU START SWITCH TO THE START POSITION
THE APU CAN START.

- 2) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.

NOTE: Wait 15 seconds each time the switch position is changed.

- 3) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- a) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- 4) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (d) If the STATUS indication on the EICAS maintenance page shows PRESS for the APU DC PUMP, replace the pressure switch S28010.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- 1) Connect the electrical connector DS28010 to the fuel pump pressure switch.



DO NOT PUT THE APU START SWITCH TO THE START POSITION.
IF YOU PUT THE APU START SWITCH TO THE START POSITION
THE APU CAN START.

- 2) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.

NOTE: Wait 15 seconds each time the switch position is changed.

- 3) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- a) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- 4) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Do these steps to check the indication wiring for the pressure switch S28010 (WDM 28-25-12):

- (a) Do these steps to do a check of the wiring between the pressure switch S28010 and the Signal Interface Unit 1 (SIU 1), M24512 in the SPMP P310:

- 1) Remove the SIU 1, M24512, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 2) Disconnect the electrical connector DS28010 from the pressure switch.
- 3) Do a continuity check between pin 2 on connector DS28010 and structure ground.

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- 4) Do this wiring check between these pins on connector DS28010 and connector DM24512C for the SIU 1, M24412 in the SPMP P310.

DS28010	DM24512C
pin 3	pin 24

- (b) Repair the wiring problems that you find.
- (c) Install the SIU 1, M24412, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (d) Install the connector DS28010 to the pressure switch.



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (e) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.
- NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- 1) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

Row	Col	Number	Name
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

————— END OF TASK —————

816. APU DC FUEL PUMP CONTROL Relay (not in commanded position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-19428.

B. Initial Evaluation

- (1) For this procedure, do this step:
- (a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

Row	Col	Number	Name
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (2) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (3) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure all of the fuel pump switches, on the overhead panel P5, are in the OFF position.

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DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (b) Put the APU Start switch to the ON and OFF position, on the Overhead Panel P5.
NOTE: Wait 15 seconds each time the switch position is changed.
- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message, there was an intermittent fault.
 - 1) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

C. Fault Isolation Procedure

- (1) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

- (2) Get access to the APU Maintenance page and Synoptic page.
- (3) Make sure all of the fuel pump switches, on the overhead panel P5, are in the OFF position.



DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION, THE APU CAN START.

- (4) Put the APU start switch to the ON and then to the OFF position, on the overhead panel P5.
NOTE: Wait 15 seconds each time the switch position is changed.
- (5) If the APU DC fuel pump is operating (Green box on the Synoptic page) and there is pressure on the maintenance page, you have an indication circuit problem, do these steps:
 - (a) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24513, installed in the standby power management panel (SPMP) P310.
This is the task:
Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.
 - 1) Do the Repair Confirmation Procedure at the end of the task.
 - (b) Do a check of the indication circuit wiring between the relay K28005, for the APU DC fuel pump, and the Signal Interface Unit 2, M24513 (WDM 28-25-11).
 - 1) Repair the wiring (WDM 28-25-11).
 - 2) Do the Repair Confirmation Procedure at the end of the task.
- (6) If the APU DC fuel pump is not operating (no Green box on the Synoptic page) and there is no pressure shown on the maintenance page, you have a control circuit problem, then continue.

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(7) Remove the relay K28005 and do a check for 28 VDC at the relay (WDM 28-25-11).

(a) If there is not 28 VDC, do one of these steps:

1) Replace this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C28614	DC FUEL PUMP

2) Repair the wiring.

(b) If there is 28 VDC, then continue.

(8) Replace the APU DC FUEL PUMP CONTROL relay K28005 (WDM 28-25-11).

(a) Do the Repair Confirmation Procedure at the end of the task.

(9) Replace the ELMS SIU 2, M24513, installed in the standby power management panel (SPMP) P310.

These are the tasks:

Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002,

Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.

(a) Do the Repair Confirmation Procedure at the end of the task.

(10) Remove the relay K28005 and do a check of the control circuit wiring between the relay K28005 and the the APU DC fuel pump (WDM 28-25-11) (WDM 28-25-12).

(a) Repair the wiring.

(b) Re-install the relay.

(c) Do the Repair Confirmation Procedure at the end of the task.

D. Repair Confirmation Procedure



CAUTION

DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION, THE APU CAN START.

(1) Put the APU Start switch to the ON and then to the OFF position, on the overhead panel P5.

NOTE: Wait 15 seconds each time the switch position is changed.

(2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

(a) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C28604	L FWD FUEL BOOST PUMP CTRL

(3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

————— **END OF TASK** —————

817. APU REMOTE SHUTDOWN Relay Problems - Fault Isolation

A. Maintenance Messages

(1) This task is for maintenance message: 28-19429.

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B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that these circuit breakers are closed:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (b) Push the APU FIRE SHUTDOWN switch S49003, on the nose gear electrical service panel P40, to the FIRE position.
- (c) Push the APU FIRE SHUTDOWN switch to the NORM position.
- (d) Push the FIRE/OVHT TEST switch, on the overhead panel P5, to unlatch the maintenance message.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE (or the maintenance message does not show), there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace APU REMOTE SHUTDOWN relay K28322, installed on the distribution integration panel, P101 (WDM 28-25-11).
 - (a) Push the APU FIRE SHUTDOWN switch to the FIRE position.
 - (b) Push the APU FIRE SHUTDOWN switch to the NORM position.
 - (c) Push the FIRE/OVHT TEST switch to unlatch the maintenance message.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (e) If the MAT shows NOT ACTIVE (or the maintenance message does not show), then you corrected the fault.
- (2) Replace APU EXTERNAL SHUTDOWN relay K49002, installed on the power management panel, P310 (WDM 28-25-11).
 - (a) Push the APU FIRE SHUTDOWN switch to the FIRE position.
 - (b) Push the APU FIRE SHUTDOWN switch to the NORM position.
 - (c) Push the FIRE/OVHT TEST switch to unlatch the maintenance message.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (e) If the MAT shows NOT ACTIVE (or the maintenance message does not show), then you corrected the fault.
- (3) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24513, in the SPMP P310 (WDM 28-25-11).

This is the task:

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Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Push the APU FIRE SHUTDOWN switch to the FIRE position.
 - (b) Push the APU FIRE SHUTDOWN switch to the NORM position.
 - (c) Push the FIRE/OVHT TEST switch to unlatch the maintenance message.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (e) If the MAT shows NOT ACTIVE (or the maintenance message does not show), then you corrected the fault.
- (4) Do a check of the internal wiring between relay K28322, relay K28323, and the ELMS Signal Interface Unit 2 (SIU 2), M24513 (WDM 28-25-11).
- (a) Repair the wiring (WDM 28-25-11).
 - (b) Push the APU FIRE SHUTDOWN switch to the FIRE position.
 - (c) Push the APU FIRE SHUTDOWN switch to the NORM position.
 - (d) Push the FIRE/OVHT TEST switch to unlatch the maintenance message.
 - (e) If the MAT shows NOT ACTIVE (or the maintenance message does not show), then you corrected the fault.

————— END OF TASK —————

818. APU REMOTE SHUTDOWN Switch Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-19422.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that these circuit breakers are closed:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL

- (b) Push and momentarily hold the APU FIRE SHUTDOWN switch S49003, on the nose gear electrical service panel P40.

NOTE: When the switch is pushed, it is in the FIRE position (FIRE is not identified on the switch).

- (c) Release the APU FIRE SHUTDOWN switch.

NOTE: When the switch is released, it is in the NORM position (NORM is not identified on the switch).

- (d) Push the FIRE/OVHT TEST switch, on the overhead panel P5, to unlatch the maintenance message.

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- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE (or the maintenance message does not show), there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace APU EXTERNAL SHUTDOWN relay K49002, installed on the power management panel, P310 (WDM 28-25-11).
 - (a) Push and momentarily hold the APU FIRE SHUTDOWN switch S49003, on the nose gear electrical service panel P40.

NOTE: When the switch is pushed, it is in the FIRE position (FIRE is not identified on the switch).
 - (b) Release the APU FIRE SHUTDOWN switch.

NOTE: When the switch is released, it is in the NORM position (NORM is not identified on the switch).
 - (c) Push the FIRE/OVHT TEST switch to unlatch the maintenance message.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (e) If the MAT shows NOT ACTIVE (or the maintenance message does not show), then you corrected the fault.
- (2) Replace APU REMOTE SHUTDOWN relay K28322, installed on the distribution integration panel, P101 (WDM 28-25-11).
 - (a) Push and momentarily hold the APU FIRE SHUTDOWN switch S49003, on the nose gear electrical service panel P40.

NOTE: When the switch is pushed, it is in the FIRE position (FIRE is not identified on the switch).
 - (b) Release the APU FIRE SHUTDOWN switch.

NOTE: When the switch is released, it is in the NORM position (NORM is not identified on the switch).
 - (c) Push the FIRE/OVHT TEST switch to unlatch the maintenance message.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (e) If the MAT shows NOT ACTIVE (or the maintenance message does not show), then you corrected the fault.
- (3) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24513, in the SPMP P310 (WDM 28-25-11).

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

 - (a) Push and momentarily hold the APU FIRE SHUTDOWN switch S49003, on the nose gear electrical service panel P40.

NOTE: When the switch is pushed, it is in the FIRE position (FIRE is not identified on the switch).
 - (b) Release the APU FIRE SHUTDOWN switch.

NOTE: When the switch is released, it is in the NORM position (NORM is not identified on the switch).
 - (c) Push the FIRE/OVHT TEST switch to unlatch the maintenance message.

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- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (e) If the MAT shows NOT ACTIVE (or the maintenance message does not show), then you corrected the fault.
- (4) Do a check of the ELMS Signal Interface Unit 1 (SIU 1), M24512, in the SPMP P310 (WDM 28-25-11).

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Push and momentarily hold the APU FIRE SHUTDOWN switch S49003, on the nose gear electrical service panel P40.
NOTE: When the switch is pushed, it is in the FIRE position (FIRE is not identified on the switch).
 - (b) Release the APU FIRE SHUTDOWN switch.
NOTE: When the switch is released, it is in the NORM position (NORM is not identified on the switch).
 - (c) Push the FIRE/OVHT TEST switch to unlatch the maintenance message.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (e) If the MAT shows NOT ACTIVE (or the maintenance message does not show), then you corrected the fault.
- (5) Replace the Monitor Card, M24521, in the SPMP P310 (WDM 26-22-11).

These are the tasks:

Current Monitor Card - Removal, AMM TASK 24-09-00-000-817-002,

Current Monitor Card - Installation, AMM TASK 24-09-00-400-813-002.

- (a) Push and momentarily hold the APU FIRE SHUTDOWN switch S49003, on the nose gear electrical service panel P40.
NOTE: When the switch is pushed, it is in the FIRE position (FIRE is not identified on the switch).
 - (b) Release the APU FIRE SHUTDOWN switch.
NOTE: When the switch is released, it is in the NORM position (NORM is not identified on the switch).
 - (c) Push the FIRE/OVHT TEST switch to unlatch the maintenance message.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (e) If the MAT shows NOT ACTIVE (or the maintenance message does not show), then you corrected the fault.
- (6) Do a check of the internal wiring between APU FIRE SHUTDOWN SWITCH, K49003; APU External Shutdown Relay, K49002; ELMS Signal Interface Unit 1 (SIU 1), M24512; and ELMS Signal Interface Unit 2 (SIU 2), M24513 (WDM 28-25-11) (WDM 26-22-11).
- (a) Repair the wiring (WDM 28-25-11).
 - (b) Push and momentarily hold the APU FIRE SHUTDOWN switch S49003, on the nose gear electrical service panel P40.
NOTE: When the switch is pushed, it is in the FIRE position (FIRE is not identified on the switch).

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- (c) Release the APU FIRE SHUTDOWN switch.

NOTE: When the switch is released, it is in the NORM position (NORM is not identified on the switch).

- (d) Push the FIRE/OVHT TEST switch to unlatch the maintenance message.
(e) If the MAT shows NOT ACTIVE (or the maintenance message does not show), then you corrected the fault.

————— **END OF TASK** —————

819. APU FUEL S/O VALVE CONTROL Relay - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-19430.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
(2) If the MAT shows LATCHED for the maintenance message, then do these steps:
(a) Make sure that these circuit breakers are closed:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C28003	APU FUEL S/O VALVE

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	5	C26636	FIRE EXT APU
L	11	C28650	APU INLET DOOR/FUEL SOV CTRL



DO NOT PUT THE APU START SWITCH TO THE START POSITION. IF YOU PUT THE APU START SWITCH TO THE START POSITION THE APU CAN START.

- (b) Put the APU start switch, on the overhead panel P5, to the ON and OFF position.
NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.
(c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
(d) If the MAT shows NOT ACTIVE (or the maintenance message does not show), there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the APU FUEL S/O VALVE CONTROL relay K28323, installed on the panel P101 (WDM 28-25-11).

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CAUTION

DO NOT SET THE APU START SWITCH TO THE START POSITION. IF YOU SET THE APU START SWITCH TO THE START POSITION, THE APU CAN START. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

- (a) Put the APU start switch to the ON and OFF position.

NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.

- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

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

- (2) Do a check of the ELMS Signal Interface Unit 2 (SIU 2), M24513, in the SPMP P310 (WDM 28-25-11).

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.



CAUTION

DO NOT SET THE APU START SWITCH TO THE START POSITION. IF YOU SET THE APU START SWITCH TO THE START POSITION, THE APU CAN START. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

- (a) Put the APU start switch to the ON and OFF position.

NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.

- (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

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

- (3) Do a check of the internal wiring between the APU FUEL S/O VALVE relay K28323 and the ELMS Signal Interface Unit 2 (SIU 2) (WDM 28-25-11).

- (a) Repair the wiring (WDM 28-25-11).



CAUTION

DO NOT SET THE APU START SWITCH TO THE START POSITION. IF YOU SET THE APU START SWITCH TO THE START POSITION, THE APU CAN START. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

- (b) Put the APU start switch to the ON and OFF position.

NOTE: Wait 15 seconds each time the switch position is changed to let the APU fuel shutoff valve go to its commanded position.

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

————— **END OF TASK** —————

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802. DEFUEL VALVE light problems at integrated refuel panel (IRP) - Fault Isolation

A. Initial Evaluation

- (1) Do these steps to do a check of the defuel valve:



DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (a) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
(b) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

(AMM TASK 06-44-00-800-802).

- (c) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	10	C28637	DFUEL VLVS

- (d) Push and release the indication light for the defuel valve, on the IRP, to make sure the light operates.

NOTE: This step makes sure the light bulb is OK.

- 1) Replace the light bulb if it is necessary.

- (e) Put the defuel valve control switch to the OPEN position.

NOTE: Wait for 15 seconds for the valve to move to the open position.

- (f) Make sure the indication lights come on.
(g) Put the defuel valve switch to the CLOSED position.
(h) Make sure the indication lights go off.

- (2) If the defuel valve does not operate correctly, do the Fault Isolation Procedure below.
(3) If the defuel valve operates correctly, the system is OK.

B. Fault Isolation Procedure

- (1) Make sure the maintenance messages that follow do not show on the maintenance access terminal (MAT).

- (a) Make sure this defuel valve maintenance message does not show: 28-20043.
(b) Make sure no fuel quantity indicating system (FQIS) messages show.
(c) If the maintenance messages above do not show, replace the actuator for the defuel valve. To replace it,

These are the tasks:

Defuel Valve (Actuator) - Removal, AMM TASK 28-26-02-000-802,

Defuel Valve (Actuator) - Installation, AMM TASK 28-26-02-400-802.

- (d) Do the initial evaluation steps again to make sure the defuel valve light operates correctly.
(e) If the defuel valve operates correctly, the system is OK.

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- (f) If the defuel valve does not operate correctly, then continue.

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- (2) Do a check of the ELMS Signal Interface Unit 2 (SIU2), M24513, in the standby power management panel (SPMP) P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Put the defuel valve control switch to the OPEN and CLOSE position two times.

NOTE: Wait for 15 seconds each time the switch position is changed.

- (b) If the defuel valve operates correctly, you corrected the fault.

- 1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

(AMM TASK 06-44-00-800-802).

- (c) If the defuel valve does not operate correctly, then continue.

- (3) Do these steps to check the defuel valve actuator wiring (WDM 28-26-11):

- (a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	10	C28637	DFUEL VLVS

- (b) Remove the Defuel Valve Control Relay K28319, from the SPMP P310.

- (c) Remove the ELMS Signal Interface Unit 2 (SIU2), M24513, in the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.

- (d) Do these steps to check the actuator control wiring:

- 1) Remove connector DV28310 from the defuel valve actuator, do this task: Defuel Valve (Actuator) - Removal, AMM TASK 28-26-02-000-802.
- 2) Make sure there is continuity between pin 4 on connector DV28310 and structure ground.
- 3) Do a wiring check between these pins on the valve connector DV28310 and connector DK28319, on the SPMP P310:

DK28319		DV28310
pin A3	.....	pin 5
pin A1	.....	pin 2

- (e) Do these steps to check the valve indication wiring:

- 1) Do a continuity check between these pins on connector DM24513C on the SIU2, M24513, on the SPMP P310 and the valve connector DV28310:

DM24513C		DV28310
pin B1		pin 2

- (f) Repair the wiring.

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- (g) Install the ELMS Signal Interface Unit 2 (SIU2), M24513, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (h) Install the Defuel Valve Control Relay K28319, in the SPMP P310.
- (i) Install the connector DV28310 to defuel valve actuator, do this task: Defuel Valve (Actuator) - Removal, AMM TASK 28-26-02-000-802.
- (j) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	10	C28637	DFUEL VLVS

- (k) Put the defuel valve control switch to the OPEN and CLOSE position two times.

NOTE: Wait for 15 seconds each time the switch position is changed.

- (l) If the defuel valve operates correctly, you corrected the fault.

- 1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

(AMM TASK 06-44-00-800-802).

- (m) If the defuel valve does not operate correctly, replace the integrated refuel panel (IRP). To replace it,

These are the tasks:

Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801,

Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.

- (n) Put the defuel valve control switch to the OPEN and CLOSE position two times.

NOTE: Wait for 15 seconds each time the switch position is changed.

- (o) If the defuel valve operates correctly, you corrected the fault.

- (p) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

(AMM TASK 06-44-00-800-802).

————— **END OF TASK** —————

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803. DEFUEL VALVE CONTROL Relay - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20045.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE or LATCHED for the maintenance message, do these steps:

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WARNING

DO NOT OPERATE THE LEADING EDGE SLATS. ACCIDENTAL SLAT OPERATION COULD CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

- (a) Install a DO-NOT-OPERATE tag to the flap control lever, on the P10 Control Stand.
- (b) Open this access panel:
(AMM TASK 06-44-00-800-802)

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (c) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	10	C28637	DFUEL VLVS

- (d) Put the defuel valve control switch to the OPEN and CLOSE position two times.
NOTE: Wait for 15 seconds each time the switch position is changed.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or the maintenance message does not show), then there was an intermittent fault.
 - 1) Close this access panel:
(AMM TASK 06-44-00-800-802)

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

C. Fault Isolation Procedure

- (1) Replace the defuel valve control relay K28319, in the standby power management panel (SPMP) P310 (WDM 28-26-11).
 - (a) Put the defuel valve control switch to the OPEN and CLOSE position two times.
NOTE: Wait for 15 seconds each time the switch position is changed.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or the maintenance message does not show), you corrected the fault.
 - 1) Close this access panel:
(AMM TASK 06-44-00-800-802)

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (c) If the MAT shows as ACTIVE for the maintenance message, then continue.
- (2) Do a check of the ELMS Signal Interface Unit 2 (SIU2), M24513, in the standby power management panel (SPMP) P310.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

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- (a) Put the defuel valve control switch to the OPEN and CLOSE position two times.

NOTE: Wait for 15 seconds each time the switch position is changed.

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

- 1) Close this access panel:

(AMM TASK 06-44-00-800-802)

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do these steps to check the relay wiring (WDM 28-26-11):

- (a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	10	C28637	DFUEL VLVS

- (b) Remove the Defuel Valve Control Relay K28319, from the SPMP P310.

- (c) Remove the ELMS Signal Interface Unit 2 (SIU2), M24513, from the SPMP P310. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.

- (d) Do these steps to check the relay control wiring:

- 1) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	10	C28637	DFUEL VLVS

- 2) Put the DEFUEL VALVE switch to the OPEN position, on the integrated refuel panel P28.

- 3) Make sure there is continuity between pin X2 on connector DK28319 and structure ground.

- 4) Make sure there is 28V DC at pin X1, on connector DK28319.

- 5) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	10	C28637	DFUEL VLVS

- 6) Do a wiring check between these pins on relay connector DK28319 and connector DM24513C, on the SPMP P310:

DK28319	DM24513C
pin X2	pin 17

- (e) Do these steps to check the relay indication wiring:

- 1) Do a wiring check between these pins on connector DM24513C on the SIU2, M24513 and the relay connector DK28319, on the SPMP P310:

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DK28319

pin B1

DM24513C

pin 2

- (f) Repair the wiring.
- (g) Install the ELMS Signal Interface Unit 2 (SIU2), M24513, in the SPMP P310. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (h) Install the Defuel Valve Control Relay K28319, in the SPMP P310.
- (i) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	10	C28637	DFUEL VLVS

- (j) Put the defuel valve control switch to the OPEN and CLOSE position two times.

NOTE: Wait for 15 seconds each time the switch position is changed.

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

- 1) Close this access panel:

(AMM TASK 06-44-00-800-802)

<u>Number</u>	<u>Name/Location</u>
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- (l) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (4) Replace the defuel valve actuator.

These are the tasks:

Defuel Valve (Actuator) - Removal, AMM TASK 28-26-02-000-802,

Defuel Valve (Actuator) - Installation, AMM TASK 28-26-02-400-802.

- (a) Put the defuel valve control switch to the OPEN and CLOSE position two times.

NOTE: Wait for 15 seconds each time the switch position is changed.

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

- 1) Close this access panel:

(AMM TASK 06-44-00-800-802)

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— **END OF TASK** —————

804. DEFUEL VALVE ACTUATOR Problems - Fault Isolation

A. Description

- (1) An internal fault in the defuel valve actuator can let the defuel enable relay, K28251, energize when it should not.
- (2) An internal fault of the defuel valve actuator is not monitored and may cause unrelated maintenance messages to appear.

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- (a) If both the FUEL JETT PUMP L and FUEL JETT PUMP R EICAS messages show, it is possible that the defuel actuator has had an internal fault.

B. Fault Isolation Procedure



MAKE SURE THAT THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE, FUEL CAN SPILL FROM THE JETTISON NOZZLES. SPILLED FUEL CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.



DO NOT OPERATE THE JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL FUMES IN THE TANK CAN CAUSE A FIRE OR AN EXPLOSION. INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (2) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
- (b) Immediately set the FUEL JETTISON ARM switch-light to the off position if the FAULT light on the ARM switch-light comes on and stays on.
- (3) Make sure there is a minimum of 15,000 lb (6804 kg) of fuel in each main fuel tank.
- (a) To refuel the airplane, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
- (4) Do these steps to find if the defuel enable relay is energized when it should not be:
- (a) Make sure that these access panels are closed:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
621DB	Refueling Station Door

- (b) Push the FUEL JETTISON ARM switch-light to the ARMED position, on the overhead panel P5.
- (c) Listen to make sure the pump operates.
- (d) Wait 1 minute.
- (e) Push the FUEL JETTISON ARM switch-light to the off position, on the overhead panel P5.
- (f) If the jettison pump did not turn off before 1 minute, do these steps:

NOTE: The defuel valve enable relay is energized when it should not be.

- 1) Do these tasks to replace the defuel actuator:
- a) Defuel Valve (Actuator) - Removal, AMM TASK 28-26-02-000-802
- b) Defuel Valve (Actuator) - Installation, AMM TASK 28-26-02-400-802.
- 2) Repeat these steps to do a check for an internal fault in the defuel valve actuator.

————— **END OF TASK** —————

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801. Fuel Jettison ARM Switch Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43260.

B. Initial Evaluation



WARNING

MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED, A FUEL SPILL NEAR THE WINGTIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure (AMM TASK 32-09-00-860-801).
- (2) Make sure there is more than 15,000 LBS (7500 KGS) of fuel in each main fuel tank (AMM TASK 12-11-01-650-801).
NOTE: If there is less fuel in the main fuel tanks, the EICAS messages FUEL JETT PUMP L and FUEL JETT PUMP R will show.
- (3) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

 - (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (4) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then do these steps:
 - (a) Push the ARM switch of the FUEL JETTISON panel, on the overhead panel P5, to the ARMED position.
 - (b) Push the ARM switch of the FUEL JETTISON panel, on the overhead panel P5, to the OFF position.
 - (c) If the MAT shows ACTIVE for the maintenance message, when the switch is in the ARMED or OFF positions, then do the Fault Isolation procedure below.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the ARMED or OFF positions, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the JETTISON ARM switch M28001S4 (WDM 28-31-11). To replace the switch, do this task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.
 - (a) Push the ARM switch of the FUEL JETTISON panel, on the overhead panel P5, to the ARMED position.
 - (b) Push the ARM switch of the FUEL JETTISON panel, on the overhead panel P5, to the OFF position.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the ARMED or OFF positions, you corrected the fault.

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- (d) If the MAT shows ACTIVE for the maintenance message when the switch is in the ARMED or OFF positions, then continue.
- (2) Do this check of the wiring (WDM 28-31-11):
 - (a) Lower the left overhead circuit breaker panel P11 to get access to the connector DM23117J on the overhead panel cardfile (OPC) P61.
 - (b) Remove the connector DM23117J from the OPC P61.
 - (c) Push the ARM switch, to the ON position.
 - (d) Do a continuity check between these pins on the connector DM23117J:

DM23117J	DM23117J
pin A11	pin A10

- (e) Push the ARM switch to the OFF position.
- (f) Do a continuity check between these pins on the connector DM23117J:

DM23117J	DM23117J
pin A11	pin A9

- (g) Repair the wiring.
- (h) Install the connector DM23117J to the OPC P61.
- (i) Close the left overhead circuit breaker panel P11.
- (j) Push the ARM switch of the FUEL JETTISON panel, on the overhead panel P5, to the ARMED position.
- (k) Push the ARM switch of the FUEL JETTISON panel, on the overhead panel P5, to the OFF position.
- (l) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the ARMED or OFF positions, you corrected the fault.
- (m) If the MAT shows ACTIVE for the maintenance message when the switch is in the ARMED or OFF positions, then continue.

- (3) Replace the Left Overhead Cardfile Chassis, M23117.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,

Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

- (a) Push the ARM switch of the FUEL JETTISON panel, on the overhead panel P5, to the ARMED position.
 - (b) Push the ARM switch of the FUEL JETTISON panel, on the overhead panel P5, to the OFF position.
 - (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the ARMED or OFF positions, you corrected the fault.
- (4) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.
 - (5) Close this access panel:

Number	Name/Location
521DB	Refueling Station Door

————— **END OF TASK** —————

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802. Fuel To Remain Switch Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43280.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then do these steps:
 - (a) Pull the FUEL TO REMAIN switch of the FUEL JETTISON panel, on the overhead panel P5, to the ON position.
 - (b) Set the FUEL TO REMAIN switch to the INCR position.
 - (c) Set the FUEL TO REMAIN switch to the DECR position.
 - (d) Set the FUEL TO REMAIN switch to the "FUEL TO REMAIN" position and push to the OFF position.
 - (e) If the MAT shows ACTIVE for the maintenance message when the switch is in one of the above positions, then do the Fault Isolation procedure below.
 - (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in one of the above positions, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the FUEL TO REMAIN switch M28001S3 (WDM 28-31-11).
 - (a) Pull the FUEL TO REMAIN switch to the ON position.
 - (b) Set the FUEL TO REMAIN switch to the INCR position.
 - (c) Set the FUEL TO REMAIN switch to the DECR position.
 - (d) Set the FUEL TO REMAIN switch to the "FUEL TO REMAIN" position and push to the OFF position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in one of the above positions, you corrected the fault.
 - (f) If the MAT shows ACTIVE for the maintenance message when the switch is in one of the above positions, then continue.
- (2) Do this check of the wiring (WDM 28-31-11):
 - (a) Lower the right overhead circuit breaker panel P11 to get access to the connector DM23217J on the Overhead Panel Cardfile (OPC) P61.
 - (b) Remove the connector DM23217J from the OPC P61.
 - (c) Remove the connector DM28001B from the FUEL JETTISON panel M28001, on the Overhead Panel P5.
 - (d) Do a continuity check between these pins on the connector DM23217J, at the OPC P61 and the connector DM28001B on the FUEL JETTISON panel.

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DM23217J	DM28001B
pin A1	pin 9
pin A2	pin 10
pin A3	pin 3
pin A4	pin 4
pin A5	pin 5
pin A6	pin 6
pin A7	pin 7
pin A8	pin 8

- (e) Repair the wiring.
 - (f) Install the connector DM23217J to the OPC P61.
 - (g) Install the connector DM28001B to the FUEL JETTISON panel.
 - (h) Close the right overhead circuit breaker panel P11.
 - (i) Pull the FUEL TO REMAIN switch to the ON position.
 - (j) Set the FUEL TO REMAIN switch to the INCR position.
 - (k) Set the FUEL TO REMAIN switch to the DECR position.
 - (l) Set the FUEL TO REMAIN switch to the "FUEL TO REMAIN" position and push to the OFF position.
 - (m) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in one of the above positions, you corrected the fault.
 - (n) If the MAT shows ACTIVE for the maintenance message when the switch is in one of the above positions, then continue.
- (3) Replace the Right Overhead Cardfile Chassis, M23217.
- These are the tasks:
- Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,
Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.
- (a) Pull the FUEL TO REMAIN switch to the ON position.
 - (b) Set the FUEL TO REMAIN switch to the INCR position.
 - (c) Set the FUEL TO REMAIN switch to the DECR position.
 - (d) Set the FUEL TO REMAIN switch to the "FUEL TO REMAIN" position and push to the OFF position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in one of the above positions, you corrected the fault.

END OF TASK

803. Left Fuel Jettison Nozzle Switch Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43440.

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B. Initial Evaluation



WARNING

MAKE SURE THAT NO PERSONNEL OR GROUND EQUIPMENT ARE BELOW OR NEAR THE WINGTIPS. FUEL CAN SPILL FROM THE JETTISON NOZZLE OUTLETS AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.



CAUTION

FUEL IN THE REFUEL/JETTISON MANIFOLD CAN BE PRESSURIZED 1-2 HOURS AFTER REFUELING, DEFUELING, FUEL JETTISON OR FUEL TRANSFER OPERATIONS. IF THE JETTISON NOZZLE VALVES ARE OPENED FUEL CAN SPILL FROM THE JETTISON NOZZLE OUTLETS.

- (1) Do these steps before you operate the jettison nozzle valves.



CAUTION

MAKE SURE THAT THE SWITCHES ARE IN THE POSITIONS SHOWN IN THE TABLE. IF THE SWITCHES ARE NOT IN THE CORRECT POSITIONS, FUEL CAN SPILL.

- (a) Make sure these switches are in the positions shown in (Table 201):

Table 201/28-31-00-993-801

SWITCH/CONTROL	POSITION	LOCATION
APU START SWITCH	OFF	P5 OVERHEAD PANEL
AFT FUEL CROSSFEED VALVE	CLOSED	P5 OVERHEAD PANEL
FWD FUEL CROSSFEED VALVE	CLOSED	P5 OVERHEAD PANEL
L AFT FUEL PUMP	OFF	P5 OVERHEAD PANEL
L FWD FUEL PUMP	OFF	P5 OVERHEAD PANEL
L CENTER FUEL PUMP	OFF	P5 OVERHEAD PANEL
R AFT FUEL PUMP	OFF	P5 OVERHEAD PANEL
R FWD FUEL PUMP	OFF	P5 OVERHEAD PANEL
R CENTER FUEL PUMP	OFF	P5 OVERHEAD PANEL
JETTISON ARM SWITCH	OFF	P5 OVERHEAD PANEL
FUEL TO REMAIN SWITCH	OFF	P5 OVERHEAD PANEL

- (b) To remove pressure from the refuel/jettison manifold, do these steps:

- 1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- 2) Put the refuel valve control switches for the left and right main fuel tanks to the OPEN position.

NOTE: This step will remove pressure from the refuel/jettison manifold.

- 3) Wait 10 minutes to remove the pressure in the manifold.
4) Put the refuel valve control switches to the CLOSED position.

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- 5) Make sure the defuel valve control switch is in the CLOSED position.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

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

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

NOTE: The control of the jettison pumps for fuel scavenge is automatic in air mode.
Make sure the jettison pump circuit breakers are open before the aircraft is in air mode.

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WARNING

OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE.
IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO
PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (d) Put the airplane in the air mode. To put it in the air mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.
- (2) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then do the Repair Confirmation below.
- (a) If the Repair Confirmation is not ok, then do the Fault Isolation procedure below.
- (b) If the Repair Confirmation is ok, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the L JETTISON NOZZLE VALVE switch M28001S1 (WDM 28-31-13). To replace the switch, do this task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.
- (a) Do the Repair Confirmation below.
- 1) If the Repair Confirmation is not ok, then continue with the Fault Isolation.
- 2) If the Repair Confirmation is ok, then you corrected the fault.
- (2) Do this check of the wiring (WDM 28-31-13):
- (a) Lower the left overhead circuit breaker panel P11 to get access to the connector DM23117J on the overhead panel cardfile (OPC) P61.
- (b) Remove the connector DM23117J from the OPC P61.
- (c) Push the L NOZZLE switch to the OPEN position.
- (d) Do a continuity check between these pins on the connector DM23117J, at the OPC P61:

DM23117J	DM23117J
pin B20	pin B19

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- (e) Push the L NOZZLE switch to the CLOSED position.
- (f) Do a continuity check between these pins on the connector DM23117J, at the OPC P61:

DM23117J	DM23117J
pin B20	pin B18

- (g) Repair the wiring.
- (h) Install the connector DM23117J to the OPC P61.
- (i) Close the left overhead circuit breaker panel P11.
- (j) Do the Repair Confirmation below.
 - 1) If the Repair Confirmation is not ok, then continue with the Fault Isolation.
 - 2) If the Repair Confirmation is ok, then you corrected the fault.
- (3) Replace the Left Overhead Cardfile Chassis, M23117.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,
Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

- (a) Do the Repair Confirmation below.

D. Repair Confirmation

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	25	C28621	L FUEL JETT NOZ VLV

- (2) Push the L NOZZLE switch to the OPEN and CLOSED positions.

NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the OPEN or CLOSED positions, you corrected the fault.
 - 1) Put the airplane in the ground mode. To put it in the ground mode, do this task:
Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

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

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

NOTE: The control of the jettison pumps for fuel scavenge is automatic in air mode.
Do not close the jettison pump circuit breakers unless the aircraft is in ground mode.

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- 3) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

804. Right Fuel Jettison Nozzle Switch Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 23-43790.

B. Initial Evaluation



MAKE SURE THAT NO PERSONNEL OR GROUND EQUIPMENT ARE BELOW OR NEAR THE WINGTIPS. FUEL CAN SPILL FROM THE JETTISON NOZZLE OUTLETS AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.



FUEL IN THE REFUEL/JETTISON MANIFOLD CAN BE PRESSURIZED 1-2 HOURS AFTER REFUELING, DEFUELING, FUEL JETTISON OR FUEL TRANSFER OPERATIONS. IF THE JETTISON NOZZLE VALVES ARE OPENED FUEL CAN SPILL FROM THE JETTISON NOZZLE OUTLETS.

- (1) Do these steps before you operate the jettison nozzle valves.



MAKE SURE THAT THE SWITCHES ARE IN THE POSITIONS SHOWN IN THE TABLE. IF THE SWITCHES ARE NOT IN THE CORRECT POSITIONS, FUEL CAN SPILL.

- (a) Make sure these switches are in the positions shown in (Table 202):

Table 202/28-31-00-993-802

SWITCH/CONTROL	POSITION	LOCATION
APU START SWITCH	OFF	P5 OVERHEAD PANEL
AFT FUEL CROSSFEED VALVE	CLOSED	P5 OVERHEAD PANEL
FWD FUEL CROSSFEED VALVE	CLOSED	P5 OVERHEAD PANEL
L AFT FUEL PUMP	OFF	P5 OVERHEAD PANEL
L FWD FUEL PUMP	OFF	P5 OVERHEAD PANEL
L CENTER FUEL PUMP	OFF	P5 OVERHEAD PANEL
R AFT FUEL PUMP	OFF	P5 OVERHEAD PANEL
R FWD FUEL PUMP	OFF	P5 OVERHEAD PANEL
R CENTER FUEL PUMP	OFF	P5 OVERHEAD PANEL
JETTISON ARM SWITCH	OFF	P5 OVERHEAD PANEL
FUEL TO REMAIN SWITCH	OFF	P5 OVERHEAD PANEL

- (b) To remove pressure from the refuel/jettison manifold, do these steps:

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- 1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- 2) Put the refuel valve control switches for the left and right main fuel tanks to the OPEN position.
NOTE: This step will remove pressure from the refuel/jettison manifold.
- 3) Wait 10 minutes to remove the pressure in the manifold.
- 4) Put the refuel valve control switches to the CLOSED position.
- 5) Make sure the defuel valve control switch is in the CLOSED position.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

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

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

NOTE: The control of the jettison pumps for fuel scavenge is automatic in air mode. Make sure the jettison pump circuit breakers are open before the aircraft is in air mode.

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WARNING

OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (d) Put the airplane in the air mode. To put it in the air mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.
- (2) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (3) If the MAT shows NOT ACTIVE for the maintenance message, then do the Repair Confirmation below.
 - (a) If the Repair Confirmation is not ok, then do the Fault Isolation procedure below.
 - (b) If the Repair Confirmation is ok, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the R JETTISON NOZZLE VALVE switch M28001S2 (WDM 28-31-23). To replace the switch, do this task: Integral Panel Light - Pushbutton Switch Replacement, AMM TASK 33-13-00-960-802.
 - (a) Do the Repair Confirmation below.
 - 1) If the Repair Confirmation is not ok, then continue with the Fault Isolation.
 - 2) If the Repair Confirmation is ok, then you corrected the fault.

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- (2) Do this check of the wiring (WDM 28-31-23):
- (a) Lower the right overhead circuit breaker panel P11 to get access to the connector DM23217J on the overhead panel cardfile (OPC) P61.
 - (b) Remove the connector DM23217J from the OPC P61.
 - (c) Push the R NOZZLE switch to the OPEN position.
 - (d) Do a continuity check between these pins on the connector DM23217J, at the OPC P61:

DM23217J	DM23217J
pin B20	pin B19

- (e) Push the R NOZZLE switch to the CLOSED position.
- (f) Do a continuity check between these pins on the connector DM23217J, at the OPC P61:

DM23217J	DM23217J
pin B20	pin B18

- (g) Repair the wiring.
 - (h) Install the connector DM23217J to the OPC P61.
 - (i) Close the right overhead circuit breaker panel P11.
 - (j) Do the Repair Confirmation below.
 - 1) If the Repair Confirmation is not ok, then continue with the Fault Isolation.
 - 2) If the Repair Confirmation is ok, then you corrected the fault.
- (3) Replace the Right Overhead Cardfile Chassis, M23217.

These are the tasks:

Overhead Panel Card File (OPCF) Removal, AMM TASK 23-93-02-000-802,
Overhead Panel Card File (OPCF) Installation, AMM TASK 23-93-02-400-802.

- (a) Do the Repair Confirmation below.

D. Repair Confirmation

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

Row	Col	Number	Name
K	12	C28620	R FUEL JETT NOZ VLV

- (2) Push the R NOZZLE switch to the OPEN and CLOSED positions.

NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) when the switch is in the OPEN or CLOSED positions, you corrected the fault.
 - 1) Put the airplane in the ground mode. To put it in the ground mode, do this task:
Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.

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ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

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

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

NOTE: The control of the jettison pumps for fuel scavenge is automatic in air mode. Do not close the jettison pump circuit breakers unless the aircraft is in ground mode.

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- 3) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

817. JETT ISLN VALVE R (EICAS Status Message with No Maintenance Message) - Fault Isolation

A. Initial Evaluation

- (1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.

- (2) If the EICAS status message JETT ISLN VALVE R shows with no correlated maintenance message, then do these steps:

- (a) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	13	C28630	R JETT ISLN VLV

- (b) Put the ARM switch on the FUEL JETTISON panel, on the Overhead Panel P5, to the ARMED and OFF position two times.

NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.

- (c) If the EICAS status message JETT ISLN VALVE R does not show, there was an intermittent fault.

- (d) If the EICAS status message JETT ISLN VALVE R continues to show, do these steps:

- 1) Go to the Maintenance Access Terminal (MAT) and look for ATA 28 maintenance messages that correlate to the Fuel Jettison isolation valve.
- 2) If there is a maintenance message that correlates to the EICAS status message JETT ISLN VALVE R, do the applicable task.

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- 3) If no maintenance messages show that correlate to the EICAS status message JETT ISLN VALVE R, put the ARM switch on the FUEL JETTISON panel, on the Overhead Panel P5, to the ARMED and OFF position two more times.

NOTE: Wait 15 seconds each time the switch position is changed, to let the jettison isolation valve go to the commanded position.

- 4) If the EICAS status message JETT ISLN VALVE R continues to show, then refer to the maintenance message 28-12012 for the components that could be the possible cause (FIM 28-Maintenance Message Index).

- (3) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.

- (4) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

— END OF TASK —

820. Left Jettison Fuel Pump ELCU (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11031.

B. Initial Evaluation



WARNING

MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED A FUEL SPILL NEAR THE WING TIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, (AMM TASK 32-09-00-860-801).



WARNING

DO NOT OPERATE ANY JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately set the FUEL JETTISON ARM switch to the OFF position if the FAULT light on the ARM switch comes on and stays on.

- (3) Make sure there is a minimum of 15,000 LBS (7500 KGS) of fuel in each main fuel tank.

NOTE: This step will prevent dry operation of the fuel jettison pumps.

- (a) To refuel the airplane, (AMM TASK 12-11-01-650-801).
- (4) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.

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- (5) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (6) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (b) Push the FUEL JETTISON ARM switch on the fuel jettison panel, on the overhead panel P5, to the ARMED position.
NOTE: Let the jettison pump run for 15 seconds.
- (c) Push the FUEL JETTISON ARM switch to the OFF position.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to replace the electronic load control unit (ELCU) (WDM 28-31-11):
 - (a) Make sure all electrical power is off at the Electrical control panel, on the P5 overhead panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.

- (b) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (c) Replace the electronic load control unit (ELCU) M28108, in the left power panel (LPP) P100.
 - (d) Supply electrical power to the left main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
 - (e) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (f) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
 - (g) Push the FUEL JETTISON ARM switch to the OFF position.
 - (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the Power Panel Controller, M24500, in the P100 Power Panel.

These are the tasks:

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Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,

Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.

- (a) Push the FUEL JETTISON ARM switch to the ARMED position.

NOTE: Let the jettison pumps run for 15 seconds.

- (b) Push the FUEL JETTISON ARM switch to the OFF position.

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

- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do a check of the ELMS Signal Interface Unit 2 (SIU2) M24505, in the left power management panel (LPMP) P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Push the FUEL JETTISON ARM switch to the ARMED position.

NOTE: Let the jettison pumps run for 15 seconds.

- (b) Push the FUEL JETTISON ARM switch to the OFF position.

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

- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (4) Do these wiring checks (SSM 28-31-11) (WDM 28-31-11):

- (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (b) Make sure all electrical power is off at the Electrical control panel, on the P5 overhead panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.

- (c) Remove these items for access to wiring pins:

- 1) Remove the Signal Interface Unit 1 (SIU 1) from the LPMP P110. To do this, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 2) Remove the P100 Power Panel Controller (PPC) from the Left Power Panel P100. To do this, do this task: Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002.
- 3) Remove the L FUEL JETT PUMP ELCU from the P100 Power Panel.
- 4) Disconnect connector DM28104 from the L Fuel Jettison Pump.
- 5) Disconnect connector D11005 from the LPMP P110.

- (d) Do a wiring check from pin 6 on connector DM24504B for the SIU 1 to pin B32 on connector DM24500 for the PPC.

- (e) Do a wiring check from these pins on connector DM24500 for the PPC to these pins on connector DM28108 for the L Fuel Jett Pump ELCU:

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DM24500	DM28108
pin B3	pin 5
pin B2	pin 6
pin B1	pin 7
pin B13	pin 8
pin B26	pin 9
pin B40	pin 10
pin B19	pin 2
pin B33	pin 13

- (f) Do a wiring check from pin 14 on connector D11005P to pin 1 on connector DM28108 for the L Fuel Jett Pump ELCU.
- (g) Do a wiring check from these pins on connector DM28108 for the L Fuel Jett Pump ELCU to these pins on connector DM28104 for the Left Fuel Jett Pump:

DM28108	DM28104
pin A2	pin B
pin B2	pin D
pin C2	pin F

- (h) Repair the wiring problems that you find.
- (i) Install these components removed for access:
- 1) Install the Signal Interface Unit 1 (SIU 1) from the LPMP P110. To do this, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
 - 2) Install the P100 Power Panel Controller (PPC) from the Left Power Panel P100. To do this, do this task: Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.
 - 3) Install the L FUEL JETT PUMP ELCU from the P100 Power Panel.
 - 4) Re-connect connector DM28104 from the L Fuel Jettison Pump.
 - 5) Re-connect connector D11005 from the LPMP P110.
- (j) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
L	22	C28645	L FUEL JETT PUMP CTRL

- (k) Supply electrical power to the left main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (l) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
- (m) Push the FUEL JETTISON ARM switch to the OFF position.
- (n) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (5) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.

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- (6) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

821. P100 Power Panel Controller Jett Pump L Function Is Disabled - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11054.

B. Initial Evaluation



WARNING

MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED A FUEL SPILL NEAR THE WING TIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, (AMM TASK 32-09-00-860-801).
- (2) Make sure there is a minimum of 15,000 LBS (7500 KGS) of fuel in each main fuel tank.
- NOTE: This step will prevent dry operation of the fuel jettison pumps.
- (a) To refuel the airplane, (AMM TASK 12-11-01-650-801).



WARNING

DO NOT OPERATE ANY JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (3) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
- (b) Immediately set the FUEL JETTISON ARM switch to the OFF position if the FAULT light on the ARM switch comes on and stays on.
- (4) Open this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (5) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (6) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

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- (b) Do the self-test for the P100 Left Power Management Panel. To do this, do this task:
ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
- (c) Push the FUEL JETTISON ARM switch on the fuel jettison panel, on the overhead panel P5, to the ARMED position.
NOTE: Let the jettison pump run for 15 seconds.
- (d) Push the FUEL JETTISON ARM switch to the OFF position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the Power Panel Controller, M24500, in the P100 Power Panel.

These are the tasks:

Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,

Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.

- (a) Do the self-test for the P100 Left Power Management Panel. To do this, do this task:
ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
 - (b) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
 - (c) Push the FUEL JETTISON ARM switch to the OFF position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do these steps to replace the electronic load control unit (ELCU) (WDM 28-31-11):

- (a) Make sure all electrical power is off at the Electrical control panel, on the P5 overhead panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.

- (b) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (c) Replace the electronic load control unit (ELCU) M28108, in the left power panel (LPP) P100.
- (d) Supply electrical power to the left main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (e) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (f) Do the self-test for the P100 Left Power Management Panel. To do this, do this task:
ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.

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- (g) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
- (h) Push the FUEL JETTISON ARM switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (j) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these wiring checks (SSM 28-31-11) (WDM 28-31-11):
 - (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (b) Make sure all electrical power is off at the Electrical control panel, on the P5 overhead panel.
NOTE: This step will remove 115V AC electrical power for removal of the ELCU.
- (c) Remove these items for access to wiring pins:
 - 1) Remove the Signal Interface Unit 1 (SIU 1) from the LPMP P110. To do this, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Remove the P100 Power Panel Controller (PPC) from the Left Power Panel P100. To do this, do this task: Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002.
 - 3) Remove the L FUEL JETT PUMP ELCU from the P100 Power Panel.
 - 4) Disconnect connector DM28104 from the L Fuel Jettison Pump.
 - 5) Disconnect connector D11005 from the LPMP P110.
- (d) Do a wiring check from pin 6 on connector DM24504B for the SIU 1 to pin B32 on connector DM24500 for the PPC.
- (e) Do a wiring check from these pins on connector DM24500 for the PPC to these pins on connector DM28108 for the L Fuel Jett Pump ELCU:

DM24500	DM28108
pin B3	pin 5
pin B2	pin 6
pin B1	pin 7
pin B13	pin 8
pin B26	pin 9
pin B40	pin 10
pin B19	pin 2
pin B33	pin 13

- (f) Do a wiring check from pin 14 on connector D11005P to pin 1 on connector DM28108 for the L Fuel Jett Pump ELCU.
- (g) Do a wiring check from these pins on connector DM28108 for the L Fuel Jett Pump ELCU to these pins on connector DM28104 for the Left Fuel Jett Pump:

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DM28108

pin A2 pin B
pin B2 pin D
pin C2 pin F

DM28104

- (h) Repair the wiring problems that you find.
- (i) Install these components removed for access:
 - 1) Install the Signal Interface Unit 1 (SIU 1) from the LPMP P110. To do this, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
 - 2) Install the P100 Power Panel Controller (PPC) from the Left Power Panel P100. To do this, do this task: Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.
 - 3) Install the L FUEL JETT PUMP ELCU from the P100 Power Panel.
 - 4) Re-connect connector DM28104 from the L Fuel Jettison Pump.
 - 5) Re-connect connector D11005 from the LPMP P110.
- (j) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (k) Supply electrical power to the left main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (l) Do the self-test for the P100 Left Power Management Panel. To do this, do this task: ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
- (m) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
- (n) Push the FUEL JETTISON ARM switch to the OFF position.
- (o) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (4) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.
- (5) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

822. Right Jettison Fuel Pump ELCU (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12029.

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B. Initial Evaluation



WARNING

MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED A FUEL SPILL NEAR THE WING TIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, (AMM TASK 32-09-00-860-801).



WARNING

DO NOT OPERATE ANY JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately set the FUEL JETTISON ARM switch to the OFF position if the FAULT light on the ARM switch comes on and stays on.
- (3) Make sure there is a minimum of 15,000 LBS (7500 KGS) of fuel in each main fuel tank.

NOTE: This step will prevent dry operation of the fuel jettison pumps.

 - (a) To refuel the airplane, (AMM TASK 12-11-01-650-801).

- (4) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (5) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (6) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (b) Push the FUEL JETTISON ARM switch on the fuel jettison panel, on the overhead panel P5, to the ARMED position.

NOTE: Let the jettison pump run for 15 seconds.
 - (c) Push the FUEL JETTISON ARM switch to the OFF position.
 - (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

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C. Fault Isolation Procedure

- (1) Do these steps to replace the electronic load control unit (ELCU) (WDM 28-31-21):
 - (a) Make sure all electrical power is off at the Electrical control panel, on the P5 overhead panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.

- (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (c) Replace the electronic load control unit (ELCU) M28212, in the left power panel (LPP) P200.
- (d) Supply electrical power to the left main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (e) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (f) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
- (g) Push the FUEL JETTISON ARM switch to the OFF position.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Replace the Power Panel Controller, M24501, in the P200 Power Panel.

These are the tasks:

Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,

Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.

- (a) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
- (b) Push the FUEL JETTISON ARM switch to the OFF position.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do a check of the ELMS Signal Interface Unit 2 (SIU2) M24509, in the right power management panel (RPMP) P210.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
- Push the FUEL JETTISON ARM switch to the OFF position.

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- (c) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (4) Do these wiring checks (SSM 28-31-11) (WDM 28-31-11):
 - (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (b) Make sure all electrical power is off at the Electrical control panel, on the P5 overhead panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.

- (c) Remove these items for access to wiring pins:
 - 1) Remove the Signal Interface Unit 2 (SIU 2) from the RPMP P210. To do this, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Remove the P200 Power Panel Controller (PPC) from the Left Power Panel P200. To do this, do this task: Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002.
 - 3) Remove the R FUEL JETT PUMP ELCU from the P200 Power Panel.
 - 4) Disconnect connector DM28204 from the R Fuel Jettison Pump.
 - 5) Disconnect connector D21026 from the RPMP P210.
- (d) Do a wiring check from pin 2 on connector DM24509B for the SIU 2 to pin B32 on connector DM24501 for the PPC.
- (e) Do a wiring check from these pins on connector DM24501 for the PPC to these pins on connector DM28212 for the R Fuel Jett Pump ELCU:

DM24501	DM28212
pin B3	pin 5
pin B2	pin 6
pin B1	pin 7
pin B13	pin 8
pin B26	pin 9
pin B40	pin 10
pin B19	pin 2
pin B33	pin 13

- (f) Do a wiring check from pin 16 on connector D21026P to pin 1 on connector DM28212 for the R Fuel Jett Pump ELCU.
- (g) Do a wiring check from these pins on connector DM28212 for the R Fuel Jett Pump ELCU to these pins on connector DM28204 for the Right Fuel Jett Pump:

DM28212	DM28204
pin A2	pin B
pin B2	pin D
pin C2	pin F

- (h) Repair the wiring problems that you find.

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- (i) Install these components removed for access:
 - 1) Install the Signal Interface Unit 2 (SIU 2) from the RPMP P210. To do this, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
 - 2) Install the P200 Power Panel Controller (PPC) from the Left Power Panel P200. To do this, do this task: Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.
 - 3) Install the R FUEL JETT PUMP ELCU in the P200 Power Panel.
 - 4) Re-connect connector DM28204 on the R Fuel Jettison Pump.
 - 5) Re-connect connector D21026 on the RPMP P210.

- (j) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (k) Supply electrical power to the left main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (l) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
- (m) Push the FUEL JETTISON ARM switch to the OFF position.
- (n) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (5) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.
- (6) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— **END OF TASK** —————

823. P200 Power Panel Controller Jett Pump R Function is Disabled - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12046.

B. Initial Evaluation



WARNING

MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED A FUEL SPILL NEAR THE WING TIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, (AMM TASK 32-09-00-860-801).



WARNING

DO NOT OPERATE ANY JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:

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- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
- (b) Immediately set the FUEL JETTISON ARM switch to the OFF position if the FAULT light on the ARM switch comes on and stays on.
- (3) Make sure there is a minimum of 15,000 LBS (7500 KGS) of fuel in each main fuel tank.
NOTE: This step will prevent dry operation of the fuel jettison pumps.
 - (a) To refuel the airplane, (AMM TASK 12-11-01-650-801).
- (4) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (5) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (6) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (b) Do the self-test for the P200 Right Power Management Panel. To do this, do this task: ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
- (c) Push the FUEL JETTISON ARM switch on the fuel jettison panel, on the overhead panel P5, to the ARMED position.
NOTE: Let the jettison pump run for 15 seconds.
- (d) Push the FUEL JETTISON ARM switch to the OFF position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the Power Panel Controller, M24501, in the P200 Power Panel.
These are the tasks:
Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,
Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.
 - (a) Do the self-test for the P200 Right Power Management Panel. To do this, do this task: ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
 - (b) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
 - (c) Push the FUEL JETTISON ARM switch to the OFF position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

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- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do these steps to replace the electronic load control unit (ELCU) (WDM 28-31-21):
 - (a) Make sure all electrical power is off at the Electrical control panel, on the P5 overhead panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.

- (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (c) Replace the electronic load control unit (ELCU) M28212, in the left power panel (RPP) P200.
- (d) Supply electrical power to the right main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (e) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (f) Do the self-test for the P200 Right Power Management Panel. To do this, do this task: ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.
- (g) Push the FUEL JETTISON ARM switch to the ARMED position.

NOTE: Let the jettison pumps run for 15 seconds.
- (h) Push the FUEL JETTISON ARM switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (j) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these wiring checks (SSM 28-31-21) (WDM 28-31-21):
 - (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (b) Make sure all electrical power is off at the Electrical control panel, on the P5 overhead panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.

- (c) Remove these items for access to wiring pins:
 - 1) Remove the Signal Interface Unit 2 (SIU 2), M24509, from the RPMP P110. To do this, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Remove the P200 Power Panel Controller (PPC) from the Right Power Panel P200. To do this, do this task: Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002.
 - 3) Remove the R FUEL JETT PUMP ELCU from the P200 Power Panel.

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- 4) Disconnect connector DM28204 from the R Fuel Jettison Pump.
- 5) Disconnect connector D21026 from the RPMP P210.
- (d) Do a wiring check from pin 2 on connector DM24509B for the SIU 2 to pin B32 on connector DM24501 for the PPC.
- (e) Do a wiring check from these pins on connector DM24501 for the PPC to these pins on connector DM28212 for the R Fuel Jett Pump ELCU:

DM24501		DM28212	
pin B3	.....	pin 5	
pin B2	.....	pin 6	
pin B1	.....	pin 7	
pin B13	.....	pin 8	
pin B26	.....	pin 9	
pin B40	.....	pin 10	
pin B19	.....	pin 2	
pin B33	.....	pin 13	

- (f) Do a wiring check from pin 16 on connector D21026P to pin 1 on connector DM28212 for the R Fuel Jett Pump ELCU.
- (g) Do a wiring check from these pins on connector DM28212 for the R Fuel Jett Pump ELCU to these pins on connector DM28204 for the Right Fuel Jett Pump:

DM28212		DM28204	
pin A2	.....	pin B	
pin B2	.....	pin D	
pin C2	.....	pin F	

- (h) Repair the wiring problems that you find.
- (i) Install these components removed for access:
 - 1) Install the Signal Interface Unit 2 (SIU 2) from the RPMP P210. To do this, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
 - 2) Install the P200 Power Panel Controller (PPC) from the Right Power Panel P200. To do this, do this task: Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.
 - 3) Install the R FUEL JETT PUMP ELCU from the P200 Power Panel.
 - 4) Re-connect connector DM28204 from the R Fuel Jettison Pump.
 - 5) Re-connect connector D21026 from the RPMP P210.
- (j) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (k) Supply electrical power to the right main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (l) Do the self-test for the P200 Right Power Management Panel. To do this, do this task: ELMS Power Management Panel - System Test, AMM TASK 24-09-00-730-801.

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- (m) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
- (n) Push the FUEL JETTISON ARM switch to the OFF position.
- (o) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (4) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.
- (5) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

824. LEFT JETT ISOL VALVE Relay (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11052.

B. Initial Evaluation

 WARNING	MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED A FUEL SPILL NEAR THE WINGTIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, (AMM TASK 32-09-00-860-801).
- (2) Make sure there is a minimum of 15,000 LBS (7500 KGS) of fuel in each main fuel tank.
 - (a) To refuel the airplane, (AMM TASK 12-11-01-650-801).
- (3) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

 - (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (4) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (5) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- (b) Push the ARM switch of the FUEL JETTISON panel, on the overhead panel P5, to the ARMED and OFF position two times.
NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.
- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.

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- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the LEFT JETTISON ISOLATION VALVE CTRL Relay (K28144), on the left power management panel (LPMP) P110 (WDM 28-31-12).
- (a) Put the FUEL JETTISON ARM switch to the ARMED and OFF position two times.
- NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do a check of the ELMS Signal Interface Unit 1 (SIU 1), M24504, in the LPMP P110.
- This is the task:
- Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.
- (a) Put the FUEL JETTISON ARM switch to the ARMED and OFF positions two times.
- NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these steps to check the wiring (WDM 28-31-12):
- (a) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) Disconnect the electrical connector DV28165 from the actuator for the left jettison isolation valve, installed on the rear spar of the left center fuel tank (AMM TASK 28-31-05-400-802).
- (d) Remove the relay K28144 from the LPMP P110.
- (e) Remove the Signal Interface Unit (SIU 1), M24504 from the LPMP P110. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- (f) Do these steps to check the indication wiring:
- 1) Do a check of the wiring between these pins on connector DK28144 and connector DM24402A on the LPMP P110:

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DK28144 **DM24504A**
pin B1 pin 8

- 2) Do a check of the wiring between these pins on connector DV28165, at the actuator V28165 and connector DK28144, on the LPMP P110:

DV28165 **DK28144**
pin 2 pin B1

- (g) Do these steps to check the relay control wiring:
- 1) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- 2) Make sure there is 28V DC at pin B2 and pin X1 on connector DK28144.
- 3) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- 4) Do a check of the wiring between these pins on connector DM24518 on monitor card M24518 and connector DK28144, on the LPMP P110:

DM24518 **DK28144**
pin 76 pin X2

- 5) Do a check of the wiring between these pins on monitor card M24518, and connector DM24504B on the SIU 1 on the LPMP P110 (WDM 28-31-12):

DM24518 **DM24504B**
pin 75 pin 7

- 6) Do a check of the wiring between these pins on monitor card M24518, and monitor card M24519 on the Right Power Management Panel (RPMP) P210 (WDM 28-31-12) (WDM 28-31-22):

DM24518 **DM24519**
pin 74 pin 75

- (h) Repair the wiring problems.
- (i) Install these components removed for access:
 - 1) Connect the electrical connector DV28165 to the actuator V28165.
 - 2) Install the relay K28144 in the LPMP P110.
 - 3) Install the SIU 1, M24504 in the LPMP P110. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.



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- (j) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- (k) Put the FUEL JETTISON ARM switch to the ARMED and OFF positions two times.

NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.

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

- (4) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.

- (5) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— **END OF TASK** —————

825. RIGHT JETT ISOL VALVE Relay (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12033.

B. Initial Evaluation



WARNING

MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED A FUEL SPILL NEAR THE WINGTIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, (AMM TASK 32-09-00-860-801).
- (2) Make sure there is a minimum of 15,000 LBS (7500 KGS) of fuel in each main fuel tank.
- (a) To refuel the airplane, (AMM TASK 12-11-01-650-801).

- (3) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (4) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (5) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

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- (b) Push the ARM switch of the FUEL JETTISON panel, on the overhead panel P5, to the ARMED and OFF position two times.

NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.

- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the RIGHT JETTISON ISOLATION VALVE CTRL Relay (K28244), on the right power management panel (RPMP) P210 (WDM 28-31-22).

- (a) Put the FUEL JETTISON ARM switch to the ARMED and OFF position two times.

NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.

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

- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (2) Do a check of the ELMS Signal Interface Unit 1 (SIU 1), M24508, in the RPMP P210.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Put the FUEL JETTISON ARM switch to the ARMED and OFF positions two times.

NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.

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

- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

- (3) Do these steps to check the wiring (WDM 28-31-22):

- (a) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	13	C28630	R JETT ISLN VLV



WARNING

OBEY THE INSTALLATION PROCEDURE FOR THE DOOR SAFETY PINS. THE DOORS OPEN AND CLOSE QUICKLY. THE MOVEMENT OF THE DOORS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (b) Do this task: Landing Gear Door Safety Pins Installation, AMM TASK 32-00-15-480-801.
- (c) Disconnect the electrical connector DV28265 from the actuator for the right jettison isolation valve, installed on the rear spar of the right center fuel tank (AMM TASK 28-31-05-400-802).
- (d) Remove the relay K28244 from the RPMP P210.
- (e) Remove the Signal Interface Unit (SIU 1), M24508 from the RPMP P210. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.

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(f) Do these steps to check the indication wiring:

- 1) Do a check of the wiring between these pins on connector DK28244 and connector DM24508A on the RPMP P210:

DK28244	DM24508A
pin B1	pin 12

- 2) Do a check of the wiring between these pins on connector DV28265, at the actuator V28265 and connector DK28244, on the RPMP P210:

DV28265	DK28244
pin 2	pin B1

(g) Do these steps to check the relay control wiring:

- 1) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	13	C28630	R JETT ISLN VLV

- 2) Make sure there is 28V DC at pin B2 and pin X1 on connector DK28244.
- 3) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	13	C28630	R JETT ISLN VLV

- 4) Do a check of the wiring between these pins on connector DM24519 on monitor card M24519 and connector DK28244, on the RPMP P210:

DM24519	DK28244
pin 76	pin X2

- 5) Do a check of the wiring between these pins on monitor card M24519, and connector DM24504B on the SIU 1 on the LPMP P110 (WDM 28-31-22):

DM24519	DM24508B
pin 74	pin 4

- 6) Do a check of the wiring between these pins on monitor card M24519, and monitor card M24518 on the Left Power Management Panel (LPMP) P110 (WDM 28-31-12) (WDM 28-31-22):

DM24519	DM24518
pin 75	pin 74

(h) Repair the wiring problems.

(i) Install these components removed for access:

- 1) Connect the electrical connector DV28265 to the actuator V28265.
- 2) Install the relay K28244 in the RPMP P210.

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- 3) Install the SIU 1, M24508 in the RPMP P210. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (j) Close this circuit breaker:
- Right Power Management Panel, P210**
- | <u>Row</u> | <u>Col</u> | <u>Number</u> | <u>Name</u> |
|------------|------------|---------------|-----------------|
| K | 13 | C28630 | R JETT ISLN VLV |
- (k) Put the FUEL JETTISON ARM switch to the ARMED and OFF positions two times.
- NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.
- (l) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (4) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.
- (5) Close this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |

END OF TASK

826. L FUEL JETTISON PUMP (PRESS SWITCH IS LOW, PUMP COMMANDED ON) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11038.

B. Initial Evaluation



MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED A FUEL SPILL NEAR THE WINGTIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, (AMM TASK 32-09-00-860-801).



DO NOT OPERATE ANY JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately set the FUEL JETTISON ARM switch to the OFF position if the FAULT light on the ARM switch comes on and stays on.
- (3) Make sure there is a minimum of 15,000 lb (6804 kg) of fuel in each main fuel tank.
- (a) To refuel the airplane, (AMM TASK 12-11-01-650-801).

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- (4) If maintenance messages 28-11038 and 28-12024 show, do the steps that follow:
- (a) If the fault occurred approximately 10 minutes after takeoff, do the steps that follow:
 - 1) Replace the JTSN BITE T/D RELAY, K28250 on the LEFT OVERRIDE/JETTISON FUEL PUMP RELAY PANEL, P301 in the main equipment center (SSM 28-31-11, WDM 28-31-11).
 - 2) Continue with the fault isolation to determine if the fault is corrected.
NOTE: If the fault is corrected on the ground but occurs during the subsequent flight, there is a fault in the jettison automated test.
 - (b) If the fault appeared on the ground, do the steps that follow:
 - 1) Replace the DEFUEL ENABLE RELAY, K28251 on the LEFT OVERRIDE/JETTISON FUEL PUMP RELAY PANEL, P301 in the main equipment center (SSM 28-31-11, WDM 28-31-11).
 - 2) Continue with the fault isolation to determine if the fault is corrected.

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- (5) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (6) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do these steps:
- (a) If the EICAS ADVISORY message, FUEL JETTISON MAIN, is displayed, push the FUEL JETTISON ARM switch to the OFF position, on the overhead panel P5.
 - (b) Put a DO-NOT-OPERATE tag on the flap control lever, in the flight compartment (AMM TASK 27-81-00-040-801).
 - (c) Open these access panels:
(AMM TASK 06-44-00-800-802)

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
621DB	Refueling Station Door
 - (d) Put the DEFUEL VALVE switch to the OPEN position on the integrated refuel panel, P28.
 - (e) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
NOTE: Let the jettison pump run for 15 seconds.
 - (f) Push the FUEL JETTISON ARM switch to the OFF position.
 - (g) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
 - (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you have corrected the fault.
 - (i) Put the DEFUEL VALVE switch to the CLOSE position on the integrated refuel panel, P28.

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- (j) Close these access panels:
(AMM TASK 06-44-00-800-802)
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
| 621DB | Refueling Station Door |
- (k) Remove the DO-NOT-OPERATE tag on the flap control lever, in the flight compartment (AMM TASK 27-81-00-040-801).

C. Fault Isolation Procedure

- (1) Make sure all of the switches for the center and main fuel tank pumps are in the OFF position, on the overhead panel (P5).
- (2) To get access to the left fuel jettison pump, remove this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 552HB | Inboard Fixed Trailing Edge Panel |
- (a) Refer to this task: (AMM TASK 06-44-00-800-802).
- (3) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
- (4) Listen to make sure the left jettison pump (M28104), operates.
- (5) Push the FUEL JETTISON ARM switch to the OFF position.
- (6) If the left jettison pump operates correctly, replace the pressure switch S28111.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,

Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- (a) Push the FUEL JETTISON ARM switch to the ARMED position.

NOTE: Let the pump run for 15 seconds.

- (b) Push the FUEL JETTISON ARM switch to the OFF position.

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

- 1) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel

- a) Refer to this task: (AMM TASK 06-44-00-800-802).

- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

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- (7) Replace the L-JTSN PUMP AUTO SHUT OFF RELAY, K28025 on the LEFT OVERRIDE/JETTISON FUEL PUMP RELAY PANEL, P301 in the main equipment center (SSM 28-31-11, WDM 28-31-11).
- (a) Push the FUEL JETTISON ARM switch to the ARMED position.
- NOTE: Let the pump run for 15 seconds.
- (b) Push the FUEL JETTISON ARM switch to the OFF position.
- (c) If the pump does not run or the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation procedure.

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- (d) If the pump runs and the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (8) Replace the L-JTSN PUMP AUTO SHUT OFF RELAY DRVR, K28023 on the LEFT OVERRIDE/JETTISON FUEL PUMP RELAY PANEL, P301 in the main equipment center (SSM 28-31-11, WDM 28-31-11).
 - (a) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the pump run for 15 seconds.
 - (b) Push the FUEL JETTISON ARM switch to the OFF position.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation procedure.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

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- (9) If the left jettison pump does not operate, replace the pump M28104.
These are the tasks:
Fuel Jettison Pump (Motor-Impeller) - Removal, AMM TASK 28-31-01-000-801,
Fuel Jettison Pump (Motor-Impeller) - Installation, AMM TASK 28-31-01-400-801.
 - (a) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
 - (b) Listen to make sure the left jettison pump M28104, operates.
 - (c) Push the FUEL JETTISON ARM switch to the OFF position.
 - (d) If the left jettison pump operates, then continue to the next step.
 - (e) If the left jettison pump does not operate, do these steps:
 - 1) Disconnect the electrical connector DM28104 from the left jettison pump (WDM 28-31-11).
 - 2) Push the FUEL JETTISON ARM switch to the ARMED position.
 - 3) Do an electrical check for 3 Phase 115V AC at connector DM28104.
 - 4) If 115V AC does not show, repair the wiring.
 - 5) Push the FUEL JETTISON ARM switch to the OFF position.
 - 6) Connect the electrical connector DM28104 to the left jettison pump.
 - (f) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the pump run for 15 seconds.
 - (g) Push the FUEL JETTISON ARM switch to the OFF position.
 - (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
 - 1) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel

 - a) Refer to this task: (AMM TASK 06-44-00-800-802).

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- (i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (10) Do a check of the signal interface unit 2 (SIU 2), M24505, in the LPMP P110.
- This is the task:
- Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.
- (a) Push the FUEL JETTISON ARM switch to the ARMED position.
- NOTE: Let the pump run for 15 seconds.
- (b) Push the FUEL JETTISON ARM switch to the OFF position.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- 1) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel

a) Refer to this task: (AMM TASK 06-44-00-800-802).

- (d) If the MAT shows ACTIVE or LATCHED for the maintenance, then continue.

- (11) Do these steps to check the indication wiring for the pressure switch S28111 (WDM 28-31-11):
- (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28111 and the signal interface unit 2 (SIU 2), M24505 in the LPMP P110:
- 1) Remove the SIU 2, from the LPMP P110. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Disconnect the electrical connector DS28111 from the left jettison pump pressure switch.
 - 3) Do a continuity check between pin 2 on connector DS28111 and structure ground.
 - 4) Do this wiring check between these pins on connector DS28111 and connector DM24505C for the SIU 2, M24505 in the LPMP P110.

<u>DS28111</u>	<u>DM24505C</u>
pin 3	pin 18

- (c) Repair the wiring.
- (d) Install the SIU 2, M24505, in the LPMP P110. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (e) Install the connector DS28111 on the pressure switch on the left jettison pump.
- (f) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

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- (g) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the pump run for 15 seconds.
- (h) Push the FUEL JETTISON ARM switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - 1) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel
 - a) Refer to this task: (AMM TASK 06-44-00-800-802).
- (12) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.
- (13) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— **END OF TASK** —————

827. R FUEL JETTISON PUMP (PRESS SWITCH IS LOW, PUMP COMMANDED ON) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12024.

B. Initial Evaluation



MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED A FUEL SPILL NEAR THE WINGTIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, (AMM TASK 32-09-00-860-801).



DO NOT OPERATE ANY JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately set the FUEL JETTISON ARM switch to the OFF position if the FAULT light on the ARM switch comes on and stays on.
- (3) Make sure there is a minimum of 15,000 lb (6804 kg) of fuel in each main fuel tank.
 - (a) To refuel the airplane, (AMM TASK 12-11-01-650-801).



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- (4) If maintenance messages 28-12024 and 28-11038 show, do the steps that follow:
- (a) If the fault occurred approximately 10 minutes after takeoff, do the steps that follow:
 - 1) Replace the JTSN BITE T/D RELAY, K28250 on the LEFT OVERRIDE/JETTISON FUEL PUMP RELAY PANEL, P301 in the main equipment center (SSM 28-31-11, WDM 28-31-11).
 - 2) Continue with the fault isolation to determine if the fault is corrected.
NOTE: If the fault is corrected on the ground but occurs during the subsequent flight, there is a fault in the jettison automated test.
 - (b) If the fault appeared on the ground, do the steps that follow:
 - 1) Replace the DEFUEL ENABLE RELAY, K28251 on the LEFT OVERRIDE/JETTISON FUEL PUMP RELAY PANEL, P301 in the main equipment center (SSM 28-31-11, WDM 28-31-11).
 - 2) Continue with the fault isolation to determine if the fault is corrected.

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- (5) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (6) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do these steps:
- (a) If the EICAS ADVISORY message, FUEL JETTISON MAIN, is displayed, push the FUEL JETTISON ARM switch to the OFF position, on the overhead panel P5.
 - (b) Put a DO-NOT-OPERATE tag on the flap control lever, in the flight compartment (AMM TASK 27-81-00-040-801).
 - (c) Open these access panels:
(AMM TASK 06-44-00-800-802)

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
621DB	Refueling Station Door
 - (d) Put the DEFUEL VALVE switch to the OPEN position on the integrated refuel panel, P28.
 - (e) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
NOTE: Let the jettison pump run for 15 seconds.
 - (f) Push the FUEL JETTISON ARM switch to the OFF position.
 - (g) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
 - (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you have corrected the fault.
 - (i) Close these access panels:
(AMM TASK 06-44-00-800-802)

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<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
621DB	Refueling Station Door

- (j) Remove the DO-NOT-OPERATE tag on the flap control lever, in the flight compartment (AMM TASK 27-81-00-040-801).

C. Fault Isolation Procedure

- (1) Make sure all of the switches for the center and main fuel tank pumps are in the OFF position, on the overhead panel (P5).
- (2) To get access to the right fuel jettison pump, remove this access panel:

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel

- (a) Refer to this task: (AMM TASK 06-44-00-800-802)
- (3) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
- (4) Listen to make sure the right jettison pump (M28204), operates.
- (5) Push the FUEL JETTISON ARM switch to the OFF position.
- (6) If the right jettison pump operates correctly, replace the pressure switch S28211.

These are the tasks:

Remove the Fuel Pump Pressure Switch, AMM TASK 28-42-01-000-801,
Install the Fuel Pump Pressure Switch, AMM TASK 28-42-01-420-801.

- (a) Push the FUEL JETTISON ARM switch to the ARMED position.

NOTE: Let the pump run for 15 seconds.

- (b) Push the FUEL JETTISON ARM switch to the OFF position.
- (c) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

- 1) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel

- a) Refer to this task: (AMM TASK 06-44-00-800-802)

- (d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

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- (7) Replace the R-JTSN PUMP AUTO SHUT OFF RELAY, K28026 on the RIGHT OVERRIDE/JETTISON FUEL PUMP RELAY PANEL, P302 in the main equipment center (SSM 28-31-21, WDM 28-31-21).
- (a) Push the FUEL JETTISON ARM switch to the ARMED position.
- NOTE: Let the pump run for 15 seconds.
- (b) Push the FUEL JETTISON ARM switch to the OFF position.
- (c) If the pump does not run or MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation procedure.
- (d) If the pump runs and the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

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- (8) Replace the R-JTSN PUMP AUTO SHUT OFF RELAY DRVR, K28024 on the RIGHT OVERRIDE/JETTISON FUEL PUMP RELAY PANEL, P302 in the main equipment center (SSM 28-31-21, WDM 28-31-21).
 - (a) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the pump run for 15 seconds.
 - (b) Push the FUEL JETTISON ARM switch to the OFF position.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation procedure.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

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- (9) If the right jettison pump does not operate, replace the pump M28204.
These are the tasks:
Fuel Jettison Pump (Motor-Impeller) - Removal, AMM TASK 28-31-01-000-801,
Fuel Jettison Pump (Motor-Impeller) - Installation, AMM TASK 28-31-01-400-801.
 - (a) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
 - (b) Listen to make sure the right jettison pump M28204, operates.
 - (c) Push the FUEL JETTISON ARM switch to the OFF position.
 - (d) If the right jettison pump operates, then continue to the next step.
 - (e) If the right jettison pump does not operate, do these steps:
 - 1) Disconnect the electrical connector DM28204 from the right jettison pump (WDM 28-31-21).
 - 2) Push the FUEL JETTISON ARM switch to the ARMED position.
 - 3) Do an electrical check for 3 Phase 115V AC at connector DM28204.
 - 4) If 115V AC does not show, repair the wiring.
 - 5) Push the FUEL JETTISON ARM switch to the OFF position.
 - 6) Connect the electrical connector DM28204 to the right jettison pump.
 - (f) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the pump run for 15 seconds.
 - (g) Push the FUEL JETTISON ARM switch to the OFF position.
 - (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the maintenance message does not show), you corrected the fault.
 - 1) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel
 - a) Refer to this task: (AMM TASK 06-44-00-800-802)
 - i) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (10) Do a check of the signal interface unit 2 (SIU 2), M24509, in the RPMP P210

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This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- (a) Push the FUEL JETTISON ARM switch to the ARMED position.

NOTE: Let the pump run for 15 seconds.

- (b) Push the FUEL JETTISON ARM switch to the OFF position.

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

- 1) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel

- a) Refer to this task: (AMM TASK 06-44-00-800-802)

- (d) If the MAT shows ACTIVE or LATCHED for the maintenance, then continue.

- (11) Do these steps to check the indication wiring for the pressure switch S28111 (WDM 28-31-21):

- (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28211 and the signal interface unit 2 (SIU 2), M24509 in the RPMP P210:

- 1) Remove the SIU 2, from the RPMP P210. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 2) Disconnect the electrical connector DS28211 from the right jettison pump pressure switch.
- 3) Do a continuity check between pin 2 on connector DS28211 and structure ground.
- 4) Do this wiring check between these pins on connector DS28211 and connector DM24509C for the SIU 2, M24509 in the RPMP P210.

<u>DS28211</u>	<u>DM24509C</u>
pin 3	pin 16

- (c) Repair the wiring.

- (d) Install the SIU 2, M24509, in the RPMP P210. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.

- (e) Install the connector DS28211 on the pressure switch on the right jettison pump.

- (f) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (g) Push the FUEL JETTISON ARM switch to the ARMED position.

NOTE: Let the pump run for 15 seconds.

- (h) Push the FUEL JETTISON ARM switch to the OFF position.

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- (i) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - 1) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel

 - a) Refer to this task: (AMM TASK 06-44-00-800-802)
- (12) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.
- (13) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

— END OF TASK —

828. L FUEL JETTISON PUMP (PRESS SWITCH IS HIGH, PUMP COMMANDED OFF) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11039.

B. Initial Evaluation



MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED A FUEL SPILL NEAR THE WINGTIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, (AMM TASK 32-09-00-860-801).



DO NOT OPERATE ANY JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately set the FUEL JETTISON ARM switch to the OFF position if the FAULT light on the ARM switch comes on and stays on.
- (3) Make sure there is a minimum of 15,000 LBS (7500 KGS) of fuel in each main fuel tank.
 - (a) To refuel the airplane, (AMM TASK 12-11-01-650-801).
- (4) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

 - (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (5) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.

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- (6) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
NOTE: Let the jettison pump run for 15 seconds.
 - (b) Push the FUEL JETTISON ARM switch to the OFF position.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check the pressure switch:
- (a) Get access to the FUEL MANAGEMENT maintenance page on the lower EICAS display.
 - (b) Remove this access panel:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel

- 1) (AMM TASK 06-44-00-800-802)
- (c) Disconnect the electrical connector DS28111 from the left jettison pump pressure switch (AMM TASK 28-42-01-000-801).
- (d) If the STATUS indication on the EICAS maintenance page shows NO PRESS for the L MAIN JETT PUMP, do a check of the Signal Interface Unit 2 (SIU 2), M24505, in the left power management panel (LPMP) P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Connect the electrical connector DS28111 to the fuel pump pressure switch.
- 2) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the pump run for 15 seconds.
- 3) Push the FUEL JETTISON ARM switch to the OFF position.
- 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

- a) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel

<1> (AMM TASK 06-44-00-800-802)

- 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (e) If the STATUS indication on the EICAS maintenance page shows PRESS for the L MAIN JETT PUMP, replace the pressure switch S28111 (AMM TASK 28-42-01-000-801).
 - 1) Connect the electrical connector DS28111 to the fuel pump pressure switch.
 - 2) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the pump run for 15 seconds.
 - 3) Push the FUEL JETTISON ARM switch to the OFF position.

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- 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- a) Install this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 552HB | Inboard Fixed Trailing Edge Panel |
- <1> (AMM TASK 06-44-00-800-802)
- 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do these steps to check the indication wiring for the pressure switch S28111 (WDM 28-31-11):
- (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28111 and the signal interface unit 2 (SIU 2), M24505, in the LPMP P110:
- 1) Remove the SIU 2 from the LPMP P110. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Disconnect the electrical connector DS28111 from the left jettison pump pressure switch.
 - 3) Do a continuity check between pin 2 on connector DS28111 and structure ground.
 - 4) Do this wiring check between these pins on connector DS28111 and connector DM24505C for the SIU 2, M24505 in the LPMP P110.
- | DS28111 | DM24505C |
|----------------|-----------------|
| pin 3 | pin 18 |
- (c) Repair the wiring.
- (d) Install the SIU 2, M24505, in the LPMP P110. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (e) Install the connector DS28111 to the pressure switch on the left jettison pump.
- (f) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (g) Push the FUEL JETTISON ARM switch to the ARM position.
- NOTE: Let the pump run for 15 seconds.
- (h) Push the FUEL JETTISON ARM switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

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- 1) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
552HB	Inboard Fixed Trailing Edge Panel

- a) (AMM TASK 06-44-00-800-802)

- (3) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.

- (4) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— **END OF TASK** —————

829. R FUEL JETTISON PUMP (PRESS SWITCH IS HIGH, PUMP COMMANDED OFF) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12025.

B. Initial Evaluation



WARNING

MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED A FUEL SPILL NEAR THE WINGTIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, (AMM TASK 32-09-00-860-801).



WARNING

DO NOT OPERATE ANY JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL VAPORS IN THE TANK MAY IGNITE AND CAUSE A FIRE OR EXPLOSION.

- (2) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately set the FUEL JETTISON ARM switch to the OFF position if the FAULT light on the ARM switch comes on and stays on.
- (3) Make sure there is a minimum of 15,000 LBS (7500 KGS) of fuel in each main fuel tank.
- (a) To refuel the airplane, (AMM TASK 12-11-01-650-801).
- (4) Open this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (5) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (6) If the MAT shows LATCHED for the maintenance message, then do these steps:

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- (a) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
NOTE: Let the jettison pump run for 15 seconds.
- (b) Push the FUEL JETTISON ARM switch to the OFF position.
- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check the pressure switch:

- (a) Get access to the FUEL MANAGEMENT maintenance page on the lower EICAS display.
- (b) Remove this access panel:

<u>Number</u>	<u>Name/Location</u>

652HB	Inboard Fixed Trailing Edge Panel

- 1) (AMM TASK 06-44-00-800-802)

- (c) Disconnect the electrical connector DS28211 from the right jettison pump pressure switch (AMM TASK 28-42-01-000-801).
- (d) If the STATUS indication on the EICAS maintenance page shows NO PRESS for the R MAIN JETT PUMP, do a check of the Signal Interface Unit 2 (SIU 2), M24509, in the right power management panel (RPMP) P210.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Connect the electrical connector DS28211 to the fuel pump pressure switch.
- 2) Push the FUEL JETTISON ARM switch to the ARMED position.

NOTE: Let the pump run for 15 seconds.

- 3) Push the FUEL JETTISON ARM switch to the OFF position.
- 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

- a) Install this access panel:

<u>Number</u>	<u>Name/Location</u>

652HB	Inboard Fixed Trailing Edge Panel

- <1> (AMM TASK 06-44-00-800-802)

- 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (e) If the STATUS indication on the EICAS maintenance page shows PRESS for the R MAIN JETT PUMP, replace the pressure switch S28211 (AMM TASK 28-42-01-000-801).
 - 1) Connect the electrical connector DS28211 to the fuel pump pressure switch.
 - 2) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the pump run for 15 seconds.
 - 3) Push the FUEL JETTISON ARM switch to the OFF position.

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- 4) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- a) Install this access panel:
- | <u>Number</u> | <u>Name/Location</u> |
|---------------|-----------------------------------|
| 652HB | Inboard Fixed Trailing Edge Panel |
- <1> (AMM TASK 06-44-00-800-802)
- 5) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Do these steps to check the indication wiring for the pressure switch S28211 (WDM 28-31-21):
- (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (b) Do these steps to do a check of the wiring between the pressure switch S28111 and the signal interface unit 2 (SIU 2), M24509, in the RPMP P210:
- 1) Remove the SIU 2 from the RPMP P210. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
 - 2) Disconnect the electrical connector DS28211 from the right jettison pump pressure switch.
 - 3) Do a continuity check between pin 2 on connector DS28211 and structure ground.
 - 4) Do this wiring check between these pins on connector DS28211 and connector DM24509C for the SIU 2, M24509 in the RPMP P210.
- | DS28211 | DM24509C |
|----------------|-----------------|
| pin 3 | pin 16 |
- (c) Repair the wiring.
- (d) Install the SIU 2, M24509, in the RPMP P210. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- (e) Install the connector DS28211 to the pressure switch on the right jettison pump.
- (f) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (g) Push the FUEL JETTISON ARM switch to the ARM position.
- NOTE: Let the pump run for 15 seconds.
- (h) Push the FUEL JETTISON ARM switch to the OFF position.
- (i) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

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- 1) Install this access panel:

<u>Number</u>	<u>Name/Location</u>
652HB	Inboard Fixed Trailing Edge Panel

- a) (AMM TASK 06-44-00-800-802)

- (3) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.

- (4) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

830. Left Jettison Isolation Valve (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11040.

B. Initial Evaluation



MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED, A FUEL SPILL NEAR THE WINGTIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, (AMM TASK 32-09-00-860-801).
- (2) Make sure there is a minimum of 15,000 LBS (7500 KGS) of fuel in each main fuel tank.
 - (a) To refuel the airplane, (AMM TASK 12-11-01-650-801).

- (3) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (4) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (5) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- (b) Put the ARM switch on the FUEL JETTISON panel, on the Overhead Panel P5, to the ARMED and OFF position two times.

NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.

- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.

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- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.
 - 1) If there was an intermittent fault, a fault in the valve actuator can be the cause.

NOTE: The replacement of the valve actuator is an optional step that can help decrease repeated intermittent faults.

 - a) To decrease repeated intermittent faults, it is recommended to replace the valve actuator:
 - <1> Do this task: Fuel Jettison Isolation Valve Actuator - Removal, AMM TASK 28-31-05-000-802.
 - <2> Do this task: Fuel Jettison Isolation Valve Actuator - Installation, AMM TASK 28-31-05-400-802.

C. Fault Isolation Procedure

- (1) Replace the actuator (V28165) for the left jettison isolation valve, installed on the rear spar of the left center fuel tank.

These are the tasks:

Fuel Jettison Isolation Valve Actuator - Removal, AMM TASK 28-31-05-000-802,
Fuel Jettison Isolation Valve Actuator - Installation, AMM TASK 28-31-05-400-802.

 - (a) Put the FUEL JETTISON ARM switch to the ARMED and OFF positions two times.

NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Put one person at the actuator of the left jettison isolation valve, installed on the rear spar of the left center fuel tank.
- (3) Put the FUEL JETTISON ARM switch to the ARMED position.
- (4) Make sure the manual override handle, of the left jettison isolation valve actuator, moves to the OPEN position.
- (5) Put the FUEL JETTISON ARM switch to the OFF position.
- (6) Make sure the manual override handle, of the left jettison isolation valve actuator, moves to the CLOSED position.
- (7) If the manual override handle on the actuator operates correctly, do these steps:
 - (a) Do a check of the Signal Interface Unit 1 (SIU 1), M24504, installed in the left power management panel (LPMP) P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

 - 1) Put the FUEL JETTISON ARM switch to the ARMED and OFF positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.

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(b) Do these steps to check of the valve indication wiring (WDM 28-31-12):

- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- 2) Remove the electrical connector DV28165 from the actuator for the left jettison isolation valve.
- 3) Remove the Signal Interface Unit 1 (SIU 1), M24504, from the LPMP P110. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 4) Do a wiring check between these pins on connector DV28165 and connector DM24504A for the SIU 1, M24504, on the LPMP P110:

DV28165		DM24504A
pin 3	.....	pin 10
pin 2	.....	pin 8

- 5) Repair the wiring.
- 6) Install the electrical connector DV28165 to the actuator for the left jettison isolation valve.
- 7) Install the SIU 1, M24504, in the LPMP P110. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- 8) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- 9) Put the FUEL JETTISON ARM switch to the ARMED and OFF positions two times.
NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.
- 10) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.

(8) If the manual override handle on the actuator does not operate correctly, do these steps:

(a) Do these steps to do a check of the valve control wiring (WDM 28-31-12):

- 1) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- 2) Remove the electrical connector DV28165 from the actuator of the left jettison isolation valve.

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- 3) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- 4) Put the FUEL JETTISON ARM switch to the ARMED position.
- 5) Make sure 28 VDC shows at pin 2, on connector DV28165.
- 6) Make sure 0 VDC shows at pin 5, on connector DV28165.
- 7) Put the FUEL JETTISON ARM switch to the OFF position.
- 8) Make sure 28 VDC shows at pin 5, on connector DV28165.
- 9) Make sure 0 VDC shows at pin 2, on connector DV28165.
- 10) Make sure there is continuity between pin 4 on connector DV28165 and structure ground.
- 11) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- 12) Repair the wiring problems that you find.
- 13) Install the electrical connector DV28165 to the actuator of the left jettison isolation valve.
- 14) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- 15) Put the FUEL JETTISON ARM switch to the ARMED and OFF positions two times.
- NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.
- 16) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

- (9) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.
- (10) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

831. Right Jettison Isolation Valve (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12031.

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B. Initial Evaluation



WARNING

MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED, A FUEL SPILL NEAR THE WINGTIPS CAN OCCUR.

- (1) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, (AMM TASK 32-09-00-860-801).
- (2) Make sure there is a minimum of 15,000 LBS (7500 KGS) of fuel in each main fuel tank.
 - (a) To refuel the airplane, (AMM TASK 12-11-01-650-801).
- (3) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (4) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (5) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- (b) Put the ARM switch on the FUEL JETTISON panel, on the Overhead Panel P5, to the ARMED and OFF position two times.

NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.
 - (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

- 1) If there was an intermittent fault, a fault in the valve actuator can be the cause.

NOTE: The replacement of the valve actuator is an optional step that can help decrease repeated intermittent faults.

- a) To decrease repeated intermittent faults, it is recommended to replace the valve actuator:

<1> Do this task: Fuel Jettison Isolation Valve Actuator - Removal, AMM TASK 28-31-05-000-802.

<2> Do this task: Fuel Jettison Isolation Valve Actuator - Installation, AMM TASK 28-31-05-400-802.

C. Fault Isolation Procedure

- (1) Replace the actuator (V28265) for the right jettison isolation valve, installed on the rear spar of the left center fuel tank.

These are the tasks:

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Fuel Jettison Isolation Valve Actuator - Removal, AMM TASK 28-31-05-000-802,
Fuel Jettison Isolation Valve Actuator - Installation, AMM TASK 28-31-05-400-802.

- (a) Put the FUEL JETTISON ARM switch to the ARMED and OFF positions two times.

NOTE: Wait 15 seconds each time the switch position is changed, to let the valve go to the commanded position.

- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (c) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Put one person at the actuator of the right jettison isolation valve, installed on the rear spar of the right center fuel tank.
- (3) Put the FUEL JETTISON ARM switch to the ARMED position.
- (4) Make sure the manual override handle, of the right jettison isolation valve actuator, moves to the OPEN position.
- (5) Put the FUEL JETTISON ARM switch to the OFF position.
- (6) Make sure the manual override handle, of the right jettison isolation valve actuator, moves to the CLOSED position.
- (7) If the manual override handle on the actuator operates correctly, do these steps:
- (a) Do a check of the Signal Interface Unit 1 (SIU 1), M24508, installed in the right power management panel (RPMP) P210.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Put the FUEL JETTISON ARM switch to the ARMED and OFF positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.

- 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- 3) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (b) Do these steps to check the valve indication wiring (WDM 28-31-22):
- 1) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	13	C28630	R JETT ISLN VLV

- 2) Remove the electrical connector DV28265 from the actuator for the right jettison isolation valve.
- 3) Remove the Signal Interface Unit 1 (SIU 1), M24508, from the RPMP P210. To remove it, do this task: Signal Interface Unit - Removal, AMM TASK 24-09-00-000-814-002.
- 4) Do a wiring check between these pins on connector DV28265 and connector DM24508A for the SIU 1, M24508, on the RPMP P210:

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DV28265

pin 3 pin 13
pin 2 pin 12

DM24508A

- 5) Repair the wiring.
- 6) Install the electrical connector DV28265 to the actuator for the right jettison isolation valve.
- 7) Install the SIU 1, M24508, in the RPMP P210. To install it, do this task: Signal Interface Unit - Installation, AMM TASK 24-09-00-400-810-002.
- 8) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	13	C28630	R JETT ISLN VLV

- 9) Put the FUEL JETTISON ARM switch to the ARMED and OFF positions two times.
NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.
 - 10) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (8) If the manual override handle on the actuator does not operate correctly, do these steps:
- (a) Do these steps to do a check of the valve control wiring (WDM 28-31-22):

- 1) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	13	C28630	R JETT ISLN VLV

- 2) Remove the electrical connector DV28265 from the actuator of the right jettison isolation valve.
- 3) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	13	C28630	R JETT ISLN VLV

- 4) Put the FUEL JETTISON ARM switch to the ARMED position.
- 5) Make sure 28 VDC shows at pin 2, on connector DV28265.
- 6) Make sure 0 VDC shows at pin 5, on connector DV28265.
- 7) Put the FUEL JETTISON ARM switch to the OFF position.
- 8) Make sure 28 VDC shows at pin 5, on connector DV28265.
- 9) Make sure 0 VDC shows at pin 2, on connector DV28265.
- 10) Make sure there is continuity between pin 4 on connector DV28265 and structure ground.

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- 11) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	24	C28631	L FUEL JETT ISLN VLV

- 12) Repair the wiring problems that you find.

- 13) Install the electrical connector DV28265 to the actuator of the left jettison isolation valve.

- 14) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	13	C28630	R JETT ISLN VLV

- 15) Put the FUEL JETTISON ARM switch to the ARMED and OFF positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.

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

- (9) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.

- (10) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

832. Left Jettison Nozzle Valve (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11041.

B. Initial Evaluation



MAKE SURE THAT NO PERSONNEL OR GROUND EQUIPMENT ARE BELOW OR NEAR THE WINGTIPS. FUEL CAN SPILL FROM THE JETTISON NOZZLE OUTLETS AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.



FUEL IN THE REFUEL/JETTISON MANIFOLD CAN BE PRESSURIZED 1-2 HOURS AFTER REFUELING, DEFUELING, FUEL JETTISON OR FUEL TRANSFER OPERATIONS. IF THE JETTISON NOZZLE VALVES ARE OPENED FUEL CAN SPILL FROM THE JETTISON NOZZLE OUTLETS.

- (1) Do these steps before you operate the jettison nozzle valves.

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MAKE SURE THAT THE SWITCHES ARE IN THE POSITIONS SHOWN IN THE TABLE. IF THE SWITCHES ARE NOT IN THE CORRECT POSITIONS, FUEL CAN SPILL.

- (a) Make sure these switches are in the positions shown in (Table 203):

Table 203/28-31-00-993-805

SWITCH/CONTROL	POSITION	LOCATION
APU START SWITCH	OFF	P5 OVERHEAD PANEL
AFT FUEL CROSSFEED VALVE	CLOSED	P5 OVERHEAD PANEL
FWD FUEL CROSSFEED VALVE	CLOSED	P5 OVERHEAD PANEL
L AFT FUEL PUMP	OFF	P5 OVERHEAD PANEL
L FWD FUEL PUMP	OFF	P5 OVERHEAD PANEL
L CENTER FUEL PUMP	OFF	P5 OVERHEAD PANEL
R AFT FUEL PUMP	OFF	P5 OVERHEAD PANEL
R FWD FUEL PUMP	OFF	P5 OVERHEAD PANEL
R CENTER FUEL PUMP	OFF	P5 OVERHEAD PANEL
JETTISON ARM SWITCH	OFF	P5 OVERHEAD PANEL
FUEL TO REMAIN SWITCH	OFF	P5 OVERHEAD PANEL

- (b) To remove pressure from the refuel/jettison manifold, do these steps:
- 1) Open this access panel:

Number	Name/Location
521DB	Refueling Station Door
 - 2) Put the refuel valve control switches for the left and right main fuel tanks to the OPEN position.
NOTE: This step will remove pressure from the refuel/jettison manifold.
 - 3) Wait 10 minutes to remove the pressure in the manifold.
 - 4) Put the refuel valve control switches to the CLOSED position.
 - 5) Make sure the defuel valve control switch is in the CLOSED position.

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

Left Power Management Panel, P110

Row	Col	Number	Name
L	21	C28647	CTR L OVRD FUEL PUMP CTRL
L	22	C28645	L FUEL JETT PUMP CTRL

Right Power Management Panel, P210

Row	Col	Number	Name
K	14	C28646	R FUEL JETT PUMP CTRL
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

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ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

NOTE: The control of the jettison pumps for fuel scavenge is automatic in air mode. Make sure the jettison pump circuit breakers are open before the aircraft is in air mode.

ARO ALL



WARNING

OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (d) Put the airplane in the air mode (AMM TASK 32-09-00-860-801).
- (2) Do the Repair Confirmation below.
 - (a) If the Repair Confirmation is not ok, then do the Fault Isolation procedure below.
 - (b) If the Repair Confirmation is ok, then there was an intermittent fault.
 - 1) If there was an intermittent fault, a fault in the valve actuator can be the cause.

NOTE: The replacement of the valve actuator is an optional step that can help decrease repeated intermittent faults.
 - a) To decrease repeated intermittent faults, it is recommended to replace the valve actuator:
 - <1> Do this task: Fuel Jettison Nozzle Valve Actuator - Removal, AMM TASK 28-31-03-000-804.
 - <2> Do this task: Fuel Jettison Nozzle Valve Actuator - Installation, AMM TASK 28-31-03-400-804.

C. Fault Isolation Procedure

- (1) Replace the actuator V28166 for the left jettison nozzle valve.

These are the tasks:

Fuel Jettison Nozzle Valve Actuator - Removal, AMM TASK 28-31-03-000-804,
Fuel Jettison Nozzle Valve Actuator - Installation, AMM TASK 28-31-03-400-804.

 - (a) Do the Repair Confirmation below.
 - 1) If the Repair Confirmation is not ok, then continue with the Fault Isolation.
 - 2) If the Repair Confirmation is ok, then you corrected the fault.
- (2) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
561GB	Midspan Fixed Trailing Edge Panel

 - (a) Refer to this task: Fuel Jettison Nozzle Valve Actuator - Removal, AMM TASK 28-31-03-000-804.
 - (b) Put one person at the actuator for the left jettison nozzle valve.
- (3) Put the L NOZZLE switch, on the fuel jettison panel, to the OPEN position.
- (4) Make sure the manual override handle, for the left jettison nozzle valve actuator, moves to the OPEN position.
- (5) Put the L NOZZLE switch to the CLOSED position.

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- (6) Make sure the manual override handle, for the left jettison nozzle valve actuator, moves to the CLOSED position.
- (7) If the manual override handle on the actuator operates correctly, do these steps:
 - (a) Do a check of the Signal Interface Unit 2 (SIU 2), M24505, installed in the left power management panel (LPMP) P110.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Do the Repair Confirmation below.
 - a) If the Repair Confirmation is not ok, then continue with the Fault Isolation.
 - b) If the Repair Confirmation is ok, then you corrected the fault.
- (b) Do these steps to check the valve indication wiring (WDM 28-31-13):

- 1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	25	C28621	L FUEL JETT NOZ VLV

- 2) Remove the electrical connector DV28166 from the actuator for the left jettison nozzle valve.
- 3) Remove the Signal Interface Unit 2 (SIU 2), M24505 from the LPMP P110 (AMM TASK 24-09-00-000-814-002).
- 4) Do a wiring check between these pins on connector DV28166 and connector DM24505A for the SIU 2, M24505, on the LPMP P110:

DV28166	DM24505A
pin 3	pin 14
- 5) Repair the wiring.
- 6) Install the electrical connector DV28166 to the actuator for the left jettison nozzle valve.
- 7) Install the SIU 2, M24505, in the LPMP P110 (AMM TASK 24-09-00-400-810-002).
- 8) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	25	C28621	L FUEL JETT NOZ VLV

- 9) Do the Repair Confirmation below.
 - a) If the Repair Confirmation is not ok, then continue with the Fault Isolation.
 - b) If the Repair Confirmation is ok, then you corrected the fault.
- (8) If the manual override handle on the actuator does not operate correctly, do these steps:
 - (a) Replace the L JETTISON NOZZLE VALVE switch S1 (WDM 28-31-13) (AMM TASK 33-13-00-960-802).
 - (b) Do the Repair Confirmation below.
 - 1) If the Repair Confirmation is not ok, then continue with the Fault Isolation.
 - 2) If the Repair Confirmation is ok, then you corrected the fault.

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(c) Do these steps to check the valve control wiring (WDM 28-31-13):

- 1) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	25	C28621	L FUEL JETT NOZ VLV

- 2) Remove the electrical connector DV28166 from the actuator of the left jettison nozzle valve.
- 3) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	25	C28621	L FUEL JETT NOZ VLV

- 4) Put the L NOZZLE switch to the OPEN position.
- 5) Make sure 28 VDC shows at pin 2, on connector DV28166.
- 6) Make sure 0 VDC shows at pin 5, on connector DV28166.
- 7) Put the L NOZZLE switch to the CLOSED position.
- 8) Make sure 28 VDC shows at pin 5, on connector DV28166.
- 9) Make sure 0 VDC shows at pin 2, on connector DV28166.
- 10) Make sure there is continuity between pin 4 on connector DV28166 and structure ground.
- 11) Open this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	25	C28621	L FUEL JETT NOZ VLV

- 12) Repair the wiring problems that you find.
- 13) Install the electrical connector DV28166 to the actuator of the left jettison nozzle valve.
- 14) Close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	25	C28621	L FUEL JETT NOZ VLV

- 15) Do the Repair Confirmation below.

D. Repair Confirmation

- (1) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	25	C28621	L FUEL JETT NOZ VLV

- (2) Put the L NOZZLE switch to the OPEN and CLOSED positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.

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

- 1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
561GB	Midspan Fixed Trailing Edge Panel

(AMM TASK 06-44-00-800-802).

- 2) Put the airplane in the ground mode (AMM TASK 32-09-00-860-801).
3) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL
L	22	C28645	L FUEL JETT PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

NOTE: The control of the jettison pumps for fuel scavenge is automatic in air mode.
Do not close the jettison pump circuit breakers unless the aircraft is in ground mode.

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- 4) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— **END OF TASK** —————

833. Right Jettison Nozzle Valve (Not In Commanded Position) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12026.

B. Initial Evaluation



MAKE SURE THAT NO PERSONNEL OR GROUND EQUIPMENT ARE BELOW OR NEAR THE WINGTIPS. FUEL CAN SPILL FROM THE JETTISON NOZZLE OUTLETS AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.



FUEL IN THE REFUEL/JETTISON MANIFOLD CAN BE PRESSURIZED 1-2 HOURS AFTER REFUELING, DEFUELING, FUEL JETTISON OR FUEL TRANSFER OPERATIONS. IF THE JETTISON NOZZLE VALVES ARE OPENED FUEL CAN SPILL FROM THE JETTISON NOZZLE OUTLETS.

- (1) Do these steps before you operate the jettison nozzle valves.

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MAKE SURE THAT THE SWITCHES ARE IN THE POSITIONS SHOWN IN THE TABLE. IF THE SWITCHES ARE NOT IN THE CORRECT POSITIONS, FUEL CAN SPILL.

- (a) Make sure these switches are in the positions shown in (Table 204):

Table 204/28-31-00-993-806

SWITCH/CONTROL	POSITION	LOCATION
APU START SWITCH	OFF	P5 OVERHEAD PANEL
AFT FUEL CROSSFEED VALVE	CLOSED	P5 OVERHEAD PANEL
FWD FUEL CROSSFEED VALVE	CLOSED	P5 OVERHEAD PANEL
L AFT FUEL PUMP	OFF	P5 OVERHEAD PANEL
L FWD FUEL PUMP	OFF	P5 OVERHEAD PANEL
L CENTER FUEL PUMP	OFF	P5 OVERHEAD PANEL
R AFT FUEL PUMP	OFF	P5 OVERHEAD PANEL
R FWD FUEL PUMP	OFF	P5 OVERHEAD PANEL
R CENTER FUEL PUMP	OFF	P5 OVERHEAD PANEL
JETTISON ARM SWITCH	OFF	P5 OVERHEAD PANEL
FUEL TO REMAIN SWITCH	OFF	P5 OVERHEAD PANEL

- (b) To remove pressure from the refuel/jettison manifold, do these steps:
- 1) Open this access door:

Number	Name/Location
521DB	Refueling Station Door
 - 2) Put the refuel valve control switches for the left and right main fuel tanks to the OPEN position.
NOTE: This step will remove pressure from the refuel/jettison manifold.
 - 3) Wait 10 minutes to remove the pressure in the manifold.
 - 4) Put the refuel valve control switches to the CLOSED position.
 - 5) Make sure the defuel valve control switch is in the CLOSED position.

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

Left Power Management Panel, P110

Row	Col	Number	Name
L	21	C28647	CTR L OVRD FUEL PUMP CTRL
L	22	C28645	L FUEL JETT PUMP CTRL

Right Power Management Panel, P210

Row	Col	Number	Name
K	14	C28646	R FUEL JETT PUMP CTRL
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

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ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

NOTE: The control of the jettison pumps for fuel scavenge is automatic in air mode. Make sure the jettison pump circuit breakers are open before the aircraft is in air mode.

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OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (d) Put the airplane in the air mode (AMM TASK 32-09-00-860-801).
- (2) Do the Repair Confirmation below.
 - (a) If the Repair Confirmation is not ok, then do the Fault Isolation procedure below.
 - (b) If the Repair Confirmation is ok, then there was an intermittent fault.
 - 1) If there was an intermittent fault, a fault in the valve actuator can be the cause.

NOTE: The replacement of the valve actuator is an optional step that can help decrease repeated intermittent faults.
 - a) To decrease repeated intermittent faults, it is recommended to replace the valve actuator:
 - <1> Do this task: Fuel Jettison Nozzle Valve Actuator - Removal, AMM TASK 28-31-03-000-804.
 - <2> Do this task: Fuel Jettison Nozzle Valve Actuator - Installation, AMM TASK 28-31-03-400-804.

C. Fault Isolation Procedure

- (1) Replace the actuator V28266 for the right jettison nozzle valve.

These are the tasks:

Fuel Jettison Nozzle Valve Actuator - Removal, AMM TASK 28-31-03-000-804,,

Fuel Jettison Nozzle Valve Actuator - Installation, AMM TASK 28-31-03-400-804.

 - (a) Do the Repair Confirmation below.
 - 1) If the Repair Confirmation is not ok, then continue with the Fault Isolation.
 - 2) If the Repair Confirmation is ok, then you corrected the fault.
 - (b) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
661GB	Midspan Fixed Trailing Edge Panel

 - (a) Do this task: Fuel Jettison Nozzle Valve Actuator - Removal, AMM TASK 28-31-03-000-804.
 - (b) Put one person at the actuator for the right jettison nozzle valve.
- (3) Put the R NOZZLE switch, on the fuel jettison panel, to the OPEN position.
- (4) Make sure the manual override handle, for the right jettison nozzle valve actuator, moves to the OPEN position.
- (5) Put the R NOZZLE switch to the CLOSED position.

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- (6) Make sure the manual override handle, for the right jettison nozzle valve actuator, moves to the CLOSED position.
- (7) If the manual override handle on the actuator operates correctly, do these steps:
 - (a) Do a check of the Signal Interface Unit 2 (SIU 2), M24509, installed in the right power management panel (RPMP) P210.

This is the task:

Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002.

- 1) Do the Repair Confirmation below.
 - a) If the Repair Confirmation is not ok, then continue with the Fault Isolation.
 - b) If the Repair Confirmation is ok, then you corrected the fault.

- (b) Do these steps to check the valve indication wiring (WDM 28-31-23):

- 1) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	12	C28620	R FUEL JETT NOZ VLV

- 2) Remove the electrical connector DV28266 from the actuator for the right jettison nozzle valve.
- 3) Remove the Signal Interface Unit 2 (SIU 2), M24509 from the RPMP P210 (AMM TASK 24-09-00-000-814-002).
- 4) Do a wiring check between these pins on connector DV28266 and connector DM24509A for the SIU 2, M24509, on the RPMP P210:

DV28266	DM24509A
pin 3	pin 10
- 5) Repair the wiring.
- 6) Install the electrical connector DV28266 to the actuator for the right jettison nozzle valve.
- 7) Install the SIU 2, M24509, in the RPMP P210 (AMM TASK 24-09-00-400-810-002).
- 8) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	12	C28620	R FUEL JETT NOZ VLV

- 9) Do the Repair Confirmation below.
 - a) If the Repair Confirmation is not ok, then continue with the Fault Isolation.
 - b) If the Repair Confirmation is ok, then you corrected the fault.
- (8) If the manual override handle on the actuator does not operate correctly, do these steps:
 - (a) Replace the R JETTISON NOZZLE VALVE switch S2 (WDM 28-31-13) (AMM TASK 33-13-00-960-802).
 - (b) Do the Repair Confirmation below.
 - 1) If the Repair Confirmation is not ok, then continue with the Fault Isolation.
 - 2) If the Repair Confirmation is ok, then you corrected the fault.

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(c) Do these steps to do a check of the valve control wiring (WDM 28-31-23):

- 1) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	12	C28620	R FUEL JETT NOZ VLV

- 2) Remove the electrical connector DV28266 from the actuator of the right jettison nozzle valve.
- 3) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	12	C28620	R FUEL JETT NOZ VLV

- 4) Put the R NOZZLE switch to the OPEN position.
- 5) Make sure 28 VDC shows at pin 2, on connector DV28266.
- 6) Make sure 0 VDC shows at pin 5, on connector DV28266.
- 7) Put the R NOZZLE switch to the CLOSED position.
- 8) Make sure 28 VDC shows at pin 5, on connector DV28266.
- 9) Make sure 0 VDC shows at pin 2, on connector DV28266.
- 10) Make sure there is continuity between pin 4 on connector DV28266 and structure ground.
- 11) Open this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	12	C28620	R FUEL JETT NOZ VLV

- 12) Repair the wiring problems that you find.
- 13) Install the electrical connector DV28266 to the actuator of the right jettison nozzle valve.
- 14) Close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	12	C28620	R FUEL JETT NOZ VLV

- 15) Do the Repair Confirmation below.

D. Repair Confirmation

- (1) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	12	C28620	R FUEL JETT NOZ VLV

- (2) Put the R NOZZLE switch to the OPEN and CLOSED positions two times.

NOTE: Wait for 15 seconds each time the switch position is changed to let the valve get to its commanded position.

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

- 1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
661GB	Midspan Fixed Trailing Edge Panel

- a) (AMM TASK 06-44-00-800-802).

- 2) Put the airplane in the ground mode (AMM TASK 32-09-00-860-801).
3) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	21	C28647	CTR L OVRD FUEL PUMP CTRL
L	22	C28645	L FUEL JETT PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL
L	2	C28644	CTR R OVRD FUEL PUMP CTRL

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

NOTE: The control of the jettison pumps for fuel scavenge is automatic in air mode. Do not close the jettison pump circuit breakers unless the aircraft is in ground mode.

ARO ALL

- 4) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— **END OF TASK** —————

834. ELCU (JETT PUMP L) in P100 is Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11032.

B. Initial Evaluation

- (1) Look for Maintenance Message 28-11041 or 28-12026.

NOTE: It is recommended to complete the Left or Right Jettison Nozzle Valve (Not in Commanded Position) faults before continuing with the troubleshooting below.

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DO NOT CLOSE AN ELCU THAT OPENED DURING PUMP OPERATION UNTIL YOU CORRECT THE PROBLEM. A DAMAGED ELCU OR A PROBLEM WITH THE WIRES CAN CAUSE THE ELCU TO OPEN. THIS CONDITION CAN CAUSE AN EXPLOSION.

28-AWL-17: CDCCL

- (2) Do not reset this ELCU before you do this task. This problem can be caused by a short circuit in the pump wiring or a damaged ELCU.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

28-AWL-17: CDCCL

- (3) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the left fuel jettison pump, M28104.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.



MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED A FUEL SPILL NEAR THE WING TIPS CAN OCCUR.

- (4) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.



DO NOT OPERATE THE JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL FUMES IN THE TANK CAN CAUSE A FIRE OR AN EXPLOSION. INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately set the FUEL JETTISON ARM switch to the OFF position if the FAULT light on the ARM switch comes on and stays on.
- (6) Make sure there is a minimum of 32,200 lb (14,605,674 g) of fuel in each main fuel tank.
- NOTE: This will cover the fuel jettison pumps with fuel.
- (a) To refuel the airplane, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
- (7) If the left jettison pump operated for less than 60 seconds, then shut off, make sure that the uncommanded-on pump protection system did not cause the fault:
- NOTE: The IRP door and defuel valve must be opened before setting the FUEL JETTISON ARM switch to ARMED when operating the jettison pumps on the ground. The jettison pumps will shut off after 60 seconds and maintenance message 28-11032 will be generated.

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- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (b) Put the DEFUEL VALVE switch, on the P28 Integrated Refueling Panel, to the OPEN position.

NOTE: Leave the P28, Integrated Refueling Panel and the DEFUEL VALVE switch in the OPEN position whenever you operate the jettison pumps. If you close either P28, Integrated Refueling Panel or the DEFUEL VALVE switch, it will cause the time delay relay to interrupt the ground to the jettison pump.

- (c) Push the FUEL JETTISON ARM switch, on the P5 overhead panel, to the ARMED position.

- 1) Make sure the EICAS messages clear within one minute.

- a) Once pump operation for maintenance action is complete;

<1> Push the FUEL JETTISON ARM switch, on the P5 overhead panel, to the CLOSED position.

<2> Put the DEFUEL VALVE switch, on the P28 Integrated Refueling Panel, to the CLOSE position.

<3> Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- 2) Make sure Maintenance Messages 28-12036 and 28-11032 show NOT ACTIVE.

- 3) If the left jettison pump does not operate, then continue.

NOTE: Leave the P28, Integrated Refueling Panel and the DEFUEL VALVE switch in the OPEN position whenever you operate the jettison pumps. If you close either the P28, Integrated Refueling Panel or the DEFUEL VALVE switch, it will cause the time delay relay to interrupt the ground to the jettison pump.

C. Fault Isolation Procedure

- (1) Do these steps to replace the electronic load control unit (ELCU) (WDM 28-31-11):

- (a) Make sure all electrical power is off at the electrical control panel, on the P5 overhead panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.

- (b) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (c) Replace the electronic load control unit (ELCU) M28108, in the left power panel (LPP) P100.

- (2) Do these steps to do a check of the wiring for the left jettison pump, M28104:

- (a) Examine the left jettison pump and the area around it for signs of fuel leakage.

- 1) If there are signs of fuel leakage, find the source of the fuel leakage and repair it.

- (b) Disconnect the connector DM28104 from the left jettison pump (WDM 28-31-11).

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- (c) Examine the airplane and pump sides of the electrical connector DM28104 for damage.
 - 1) Repair all the damage that you find.
- (d) Make sure the electrical connector DM28104 is disconnected.
- (e) Supply electrical power to the left main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (f) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (g) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (h) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (i) Make sure the MAT shows NOT ACTIVE for the maintenance message (or the message does not show).

NOTE: This shows the ELCU is closed.

- (j) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
- (k) After five minutes, push the FUEL JETTISON ARM switch to the OFF position.
- (l) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then do these steps:

- 1) Connect the electrical connector DM28104 to the left fuel jettison pump (WDM 28-31-11).
- 2) Put the L JETTISON ARM switch, on the P5 Overhead Panel, to the ARMED position.
- 3) Listen to make sure the left jettison pump M28104, operates.
- 4) After five minutes, put the FUEL JETTISON ARM switch, on the P5 Overhead Panel, to the off position.
- 5) If the MAT shows ACTIVE or LATCHED, then do these steps:

- a) Replace the left fuel jettison pump, M28104.

These are the tasks:

Fuel Jettison Pump (Motor-Impeller) - Removal, AMM
TASK 28-31-01-000-801,

Fuel Jettison Pump (Motor-Impeller) - Installation, AMM
TASK 28-31-01-400-801.

- b) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

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- c) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
- d) After five minutes, push the FUEL JETTISON ARM switch to the OFF position.
- e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (m) If the MAT shows ACTIVE or LATCHED, then continue.
- (3) Do these steps to look for problems with the jettison pump wiring (WDM 28-31-11):
 - (a) Remove the electronic load control unit (ELCU) M28108, in the left power panel (LPP) P100.
 - (b) Disconnect connector DM28104 from the Left Fuel Jett Pump if it is connected.
 - (c) Do a wiring check from these pins on connector DM28108 for the L Fuel Jett Pump ELCU to these pins on connector DM28104 for the Left Fuel Jett Pump (do a check for continuity, shorts to ground, and shorts from one wire to another):

DM28108	DM28104
pin A2	pin B
pin B2	pin D
pin C2	pin F

- (d) Repair any wiring problems that you find.
- (e) Re-install the electronic load control unit (ELCU) M28108, in the left power panel (LPP) P100.
- (f) Do the Repair Confirmation below.
- (g) If the Repair Confirmation is OK, then you corrected the fault.
- (h) If the Repair Confirmation is not OK, then continue.
- (4) Replace the Power Panel Controller, M24500 in the Power Panel P100.
These are the tasks:
Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,
Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.
- (a) Do the Repair Confirmation below.

D. Repair Confirmation

- (1) Do these steps to confirm that the wiring is safe:
 - (a) Make sure the electrical connector DM28104 is disconnected.
 - (b) Supply electrical power to the left main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
 - (c) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
L	22	C28645	L FUEL JETT PUMP CTRL

- (d) Make sure the MAT shows NOT ACTIVE for the maintenance message (or the message does not show).

NOTE: This shows the ELCU is closed.

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- (e) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
- (f) After five minutes, push the FUEL JETTISON ARM switch to the OFF position.
- (2) Make sure the MAT shows NOT ACTIVE for the maintenance message (or the message does not show).
 - (a) Connect the electrical connector DM28104 to the right fuel jettison pump (WDM 28-31-11).
 - (b) Put the L JETTISON ARM switch, on the P5 Overhead Panel, to the ARMED position.
 - (c) Listen to make sure the left jettison pump M28104, operates.
 - (d) After five minutes, put the FUEL JETTISON ARM switch, on the P5 Overhead Panel, to the OFF position.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (3) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.
- (4) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

835. ELCU (JETT PUMP R) in P200 is Open - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12036.

B. Initial Evaluation

- (1) Look for Maintenance Message 28-11041 or 28-12026.

NOTE: It is recommended to complete the Left or Right Jettison Nozzle Valve (Not in Commanded Position) faults before continuing with the troubleshooting below.



DO NOT CLOSE AN ELCU THAT OPENED DURING PUMP OPERATION UNTIL YOU CORRECT THE PROBLEM. A DAMAGED ELCU OR A PROBLEM WITH THE WIRES CAN CAUSE THE ELCU TO OPEN. THIS CONDITION CAN CAUSE AN EXPLOSION.

28-AWL-17: CDCCL

- (2) Do not reset this ELCU before you do this task. This problem can be caused by a short circuit in the pump wiring or a damaged ELCU.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

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28-AWL-17: CDCCL

- (3) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the right fuel jettison pump, M28204.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.



MAKE SURE THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE AND THE JETTISON NOZZLE VALVES ARE OPENED A FUEL SPILL NEAR THE WING TIPS CAN OCCUR.

- (4) Make sure the airplane is in the ground mode for this procedure. To put it in the ground mode, do this task: Air/Ground Mode Simulation, AMM TASK 32-09-00-860-801.



DO NOT OPERATE THE JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL FUMES IN THE TANK CAN CAUSE A FIRE OR AN EXPLOSION. INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately set the FUEL JETTISON ARM switch to the OFF position if the FAULT light on the ARM switch comes on and stays on.
- (6) Make sure there is a minimum of 32,200 lb (14,606 kg) of fuel in each main fuel tank.
- NOTE: This will cover the fuel jettison pumps with fuel.
- (a) To refuel the airplane, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
- (7) If the right jettison pump operated for less than 60 seconds, then shut off, make sure that the uncommanded-on pump protection system did not cause the fault:

NOTE: The IRP door and defuel valve must be opened before setting the FUEL JETTISON ARM switch to ARMED when operating the jettison pumps on the ground. The jettison pumps will shut off after 60 seconds and maintenance message 28-12036 will be generated.

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (b) Put the DEFUEL VALVE switch, on the P28 Integrated Refueling Panel, to the OPEN position.

NOTE: Leave the P28, Integrated Refueling Panel and the DEFUEL VALVE switch in the OPEN position whenever you operate the jettison pumps. If you close either P28, Integrated Refueling Panel or the DEFUEL VALVE switch, it will cause the time delay relay to interrupt the ground to the jettison pump.

- (c) Push the FUEL JETTISON ARM switch, on the P5 overhead panel, to the ARMED position.

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- 1) Verify the EICAS messages clear within one minute.
 - a) Once pump operation for maintenance action is complete;
 - <1> Push the FUEL JETTISON ARM switch , on the P5 overhead panel, to the CLOSED position.
 - <2> Put the DEFUEL VALVE switch, on the P28 Integrated Refueling Panel, to the CLOSE position.
 - <3> Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- 2) Verify Maintenance Messages 28-12036 and 28-11032 show NOT ACTIVE.
- 3) If the right jettison pump does not operate, then continue.

NOTE: Leave the P28, Integrated Refueling Panel and the DEFUEL VALVE switch in the OPEN position whenever you operate the jettison pumps. If you close either the P28, Integrated Refueling Panel or the DEFUEL VALVE switch, it will cause the time delay relay to interrupt the ground to the jettison pump.

C. Fault Isolation Procedure

- (1) Do these steps to replace the electronic load control unit (ELCU) (WDM 28-31-21):
 - (a) Make sure all electrical power is off at the Electrical control panel, on the P5 overhead panel.

NOTE: This step will remove 115V AC electrical power for removal of the ELCU.
 - (b) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210			
<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL
 - (c) Replace the electronic load control unit (ELCU) M28212, in the right power panel (RPP) P200.
- (2) Do these steps to do a check of the wiring for the right jettison pump, M28204:
 - (a) Examine the right jettison pump and the area around it for signs of fuel leakage.
 - 1) If there are signs of fuel leakage, find the source of the fuel leakage and repair it.
 - (b) Disconnect the connector DM28204 from the right jettison pump (WDM 28-31-21).
 - (c) Examine the airplane and pump sides of the electrical connector DM28204 for damage.
 - 1) Repair all the damage that you find.
 - (d) Make sure the electrical connector DM28204 is disconnected.
 - (e) Supply electrical power to the right main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
 - (f) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

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- (g) Make sure the MAT shows NOT ACTIVE for the maintenance message (or the message does not show).

NOTE: This shows the ELCU is closed.

- (h) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (i) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (j) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
- (k) After five minutes, push the FUEL JETTISON ARM switch to the OFF position.
- (l) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then do these steps:

- 1) Connect the electrical connector DM28204 to the right fuel jettison pump (WDM 28-31-21).
- 2) Put the R JETTISON ARM switch, on the P5 Overhead Panel, to the ARMED position.
- 3) Listen to make sure the right jettison pump M28204, operates.
- 4) After 5 minutes, put the FUEL JETTISON ARM switch, on the P5 Overhead Panel, to the OFF position.
- 5) If the MAT shows ACTIVE or LATCHED, then do these steps:

- a) Replace the right fuel jettison pump, M28204.

These are the tasks:

Fuel Jettison Pump (Motor-Impeller) - Removal, AMM
TASK 28-31-01-000-801,

Fuel Jettison Pump (Motor-Impeller) - Installation, AMM
TASK 28-31-01-400-801.

- b) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- c) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
- d) After five minutes, push the FUEL JETTISON ARM switch to the OFF position.
- e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (m) If the MAT shows ACTIVE or LATCHED, then continue.
- (3) Do these steps to look for problems with the jettison pump wiring (WDM 28-31-21):
- (a) Remove the electronic load control unit (ELCU) M28212, in the right power panel (RPP) P200.
- (b) Disconnect connector DM28204 from the Right Fuel Jett Pump if it is connected.

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- (c) Do a wiring check from these pins on connector DM28212 for the R Fuel Jett Pump ELCU to these pins on connector DM28204 for the Right Fuel Jett Pump (do a check for continuity, shorts to ground, and shorts from one wire to another):

DM28212		DM28204	
pin A2	.....	pin B	
pin B2	.....	pin D	
pin C2	.....	pin F	

- (d) Repair any wiring problems that you find.
- (e) Re-install the electronic load control unit (ELCU) M28212, in the right power panel (RPP) P200.
- (f) Do the Repair Confirmation below.
- (g) If the Repair Confirmation is ok, then you corrected the fault.
- (h) If the Repair Confirmation is not ok, then continue.
- (4) Replace the Power Panel Controller, M24501 in the Power Panel P200.
- These are the tasks:
- Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,
- Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.
- (a) Do the Repair Confirmation below.

D. Repair Confirmation

- (1) Do these steps to confirm that the wiring is safe:
- (a) Make sure the electrical connector DM28204 is disconnected.
- (b) Supply electrical power to the right main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (c) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (d) Make sure the MAT shows NOT ACTIVE for the maintenance message (or the message does not show).
- NOTE: This shows the ELCU is closed.
- (e) Push the FUEL JETTISON ARM switch to the ARMED position, on the overhead panel P5.
- (f) After five minutes, push the FUEL JETTISON ARM switch to the OFF position.
- (2) Make sure the MAT shows NOT ACTIVE for the maintenance message (or the message does not show).
- (a) Connect the electrical connector DM28204 to the right fuel jettison pump (WDM 28-31-21).
- (b) Put the R JETTISON ARM switch, on the P5 Overhead Panel, to the ARMED position.
- (c) Listen to make sure the right jettison pump M28204, operates.
- (d) After 5 minutes, put the FUEL JETTISON ARM switch, on the P5 Overhead Panel, to the OFF position.

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- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (3) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.
- (4) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

836. Left Jettison Fuel Pump Ground Fault Is Tripped - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-11056.

B. Initial Evaluation



DO NOT CLOSE AN OPEN CIRCUIT BREAKER OR AN OPEN GROUND FAULT RELAY. DAMAGE TO THE FUEL PUMP OR A WIRE BUNDLE PROBLEM CAN CAUSE THE CIRCUIT BREAKER OR THE RELAY TO OPEN. YOU MUST CORRECT THE CAUSE OF THE PROBLEM. A FIRE OR EXPLOSION CAN OCCUR.

28-AWL-17: CDCCL

- (1) Complete the fault isolation before returning the airplane to service.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

28-AWL-17: CDCCL

- (2) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the left fuel jettison pump, M28104.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.



MAKE SURE THAT THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE, FUEL CAN SPILL FROM THE JETTISON NOZZLES. SPILLED FUEL CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Make sure the airplane is in the ground mode for this procedure (AMM TASK 32-09-00-860-801).
- (4) Make sure there is a minimum of 15,000 LBS (7500 KGS) of fuel in each main fuel tank.

NOTE: This step will prevent dry operation of the fuel jettison pumps.

- (a) To refuel the airplane, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.

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DO NOT OPERATE THE JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL FUMES IN THE TANK CAN CAUSE A FIRE OR AN EXPLOSION. INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Obey these precautions at all times during this task:
 - (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.
 - (b) Immediately set the FUEL JETTISON ARM switch to the OFF position if the FAULT light on the ARM switch comes on and stays on.

- (6) Open this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (7) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (8) If the MAT shows LATCHED for the maintenance message, then do these steps:
 - (a) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (b) Do the self-test for the P100 Left Power Management Panel (AMM TASK 24-09-00-730-801).
 - (c) Push the FUEL JETTISON ARM switch on the fuel jettison panel, on the overhead panel P5, to the ARMED position.
NOTE: Let the jettison pump run for 15 seconds.
 - (d) Push the FUEL JETTISON ARM switch to the OFF position.
 - (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
 - (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the left jettison fuel pump, M28104.

These are the tasks:

Fuel Jettison Pump (Motor-Impeller) - Removal, AMM TASK 28-31-01-000-801,

Fuel Jettison Pump (Motor-Impeller) - Installation, AMM TASK 28-31-01-400-801.

- (a) Do the self-test for the P100 Left Power Management Panel (AMM TASK 24-09-00-730-801).
 - (b) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
 - (c) Push the FUEL JETTISON ARM switch to the OFF position.

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- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the Power Panel Controller, M24500, in the P100 Power Panel.

These are the tasks:

Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,

Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.

- (a) Do the self-test for the P100 Left Power Management Panel (AMM TASK 24-09-00-730-801).
- (b) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
- (c) Push the FUEL JETTISON ARM switch to the OFF position.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these wiring checks (SSM 28-31-11) (WDM 28-31-11):
 - (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (b) Make sure all electrical power is off at the Electrical control panel, on the P5 overhead panel.
NOTE: This step will remove 115V AC electrical power for removal of the ELCU.
- (c) Remove these items for access to wiring pins:
 - 1) Remove the Signal Interface Unit 1 (SIU 1) from the LPMP P110 (AMM TASK 24-09-00-000-814-002).
 - 2) Remove the P100 Power Panel Controller (PPC) from the Left Power Panel P100 (AMM TASK 24-09-00-000-816-002).
 - 3) Remove the L FUEL JETT PUMP ELCU from the P100 Power Panel.
 - 4) Disconnect connector DM28104 from the L Fuel Jettison Pump.
 - 5) Disconnect connector D11005 from the LPMP P110.
- (d) Do a wiring check from pin 6 on connector DM24504B for the SIU 1 to pin B32 on connector DM24500 for the PPC.
- (e) Do a wiring check from these pins on connector DM24500 for the PPC to these pins on connector DM28108 for the L Fuel Jett Pump ELCU:

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DM24500	DM28108
pin B3	pin 5
pin B2	pin 6
pin B1	pin 7
pin B13	pin 8
pin B26	pin 9
pin B40	pin 10
pin B19	pin 2
pin B33	pin 13

- (f) Do a wiring check from pin 14 on connector D11005P to pin B18 on connector DM24500 for the P100 Power Panel Controller (PPC).
- (g) Do a wiring check from pin B47 to pin B46 on connector DM24500 for the P100 PPC.
- (h) Do a wiring check from these pins on connector DM28108 for the L Fuel Jett Pump ELCU to these pins on connector DM28104 for the Left Fuel Jett Pump:

DM28108	DM28104
pin A2	pin B
pin B2	pin D
pin C2	pin F

- (i) Repair the wiring problems that you find.
- (j) Install these components removed for access:
 - 1) Install the Signal Interface Unit 1 (SIU 1) from the LPMP P110 (AMM TASK 24-09-00-400-810-002).
 - 2) Install the P100 Power Panel Controller (PPC) from the Left Power Panel P100 (AMM TASK 24-09-00-400-812-002).
 - 3) Install the L FUEL JETT PUMP ELCU from the P100 Power Panel.
 - 4) Re-connect connector DM28104 from the L Fuel Jettison Pump.
 - 5) Re-connect connector D11005 from the LPMP P110.
- (k) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

Row	Col	Number	Name
L	22	C28645	L FUEL JETT PUMP CTRL

- (l) Supply electrical power to the left main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
 - (m) Do the self-test for the P100 Left Power Management Panel (AMM TASK 24-09-00-730-801).
 - (n) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
 - (o) Push the FUEL JETTISON ARM switch to the OFF position.
 - (p) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (4) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.

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- (5) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

837. Right Jettison Fuel Pump Ground Fault is Tripped - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-12047.

B. Initial Evaluation



DO NOT CLOSE AN OPEN CIRCUIT BREAKER OR AN OPEN GROUND FAULT RELAY. DAMAGE TO THE FUEL PUMP OR A WIRE BUNDLE PROBLEM CAN CAUSE THE CIRCUIT BREAKER OR THE RELAY TO OPEN. YOU MUST CORRECT THE CAUSE OF THE PROBLEM. A FIRE OR EXPLOSION CAN OCCUR.

28-AWL-17: CDCCL

- (1) Complete the fault isolation before returning the airplane to service.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.

28-AWL-17: CDCCL

- (2) Do this task: AC Fuel Pumps - Insulation Resistance Test, AMM TASK 28-22-00-760-801, for the right fuel jettison pump, M28204.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-17.



MAKE SURE THAT THE AIRPLANE IS IN THE GROUND MODE. IF THE AIRPLANE IS IN THE AIR MODE, FUEL CAN SPILL FROM THE JETTISON NOZZLES. SPILLED FUEL CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Make sure the airplane is in the ground mode for this procedure (AMM TASK 32-09-00-860-801).



DO NOT OPERATE THE JETTISON PUMP IF THE FAULT LIGHT ON THE ARM SWITCH COMES ON AND STAYS ON. FUEL FUMES IN THE TANK CAN CAUSE A FIRE OR AN EXPLOSION. INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Obey these precautions at all times during this task:
- (a) To operate any of the fuel pumps, you must be in the flight compartment to continuously monitor the fuel quantity and the low pressure indication in the applicable tank.

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- (b) Immediately set the FUEL JETTISON ARM switch to the OFF position if the FAULT light on the ARM switch comes on and stays on.
- (5) Make sure there is a minimum of 15,000 LBS (7500 KGS) of fuel in each main fuel tank.
NOTE: This step will prevent dry operation of the fuel jettison pumps.
- (a) To refuel the airplane, do this task: Pressure Refueling, AMM TASK 12-11-01-650-801.
- (6) Open this access door:
- | Number | Name/Location |
|---------------|------------------------|
| 521DB | Refueling Station Door |
- (a) Put the DEFUEL VALVE switch, on the Integrated Refuel Panel (IRP), P28, to the OPEN position.
- (7) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (8) If the MAT shows LATCHED for the maintenance message, then do these steps:
- (a) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

Row	Col	Number	Name
K	14	C28646	R FUEL JETT PUMP CTRL

- (b) Do the self-test for the P200 Right Power Management Panel (AMM TASK 24-09-00-730-801).
- (c) Push the FUEL JETTISON ARM switch on the fuel jettison panel, on the overhead panel P5, to the ARMED position.
NOTE: Let the jettison pump run for 15 seconds.
- (d) Push the FUEL JETTISON ARM switch to the OFF position.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then do the Fault Isolation procedure below.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the right jettison fuel pump, M28204.

These are the tasks:

Fuel Jettison Pump (Motor-Impeller) - Removal, AMM TASK 28-31-01-000-801,

Fuel Jettison Pump (Motor-Impeller) - Installation, AMM TASK 28-31-01-400-801.

- (a) Do the self-test for the P210 Right Power Management Panel (AMM TASK 24-09-00-730-801).
- (b) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
- (c) Push the FUEL JETTISON ARM switch to the OFF position.
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (2) Replace the Power Panel Controller, M24501, in the P200 Power Panel.

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These are the tasks:

Power Panel Controller - Removal, AMM TASK 24-09-00-000-816-002,

Power Panel Controller - Installation, AMM TASK 24-09-00-400-812-002.

- (a) Do the self-test for the P200 Right Power Management Panel (AMM TASK 24-09-00-730-801).
 - (b) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
 - (c) Push the FUEL JETTISON ARM switch to the OFF position.
 - (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
 - (e) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (3) Do these wiring checks (SSM 28-31-21) (WDM 28-31-21):
- (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (b) Make sure all electrical power is off at the Electrical control panel, on the P5 overhead panel.
NOTE: This step will remove 115V AC electrical power for removal of the ELCU.
- (c) Remove these items for access to wiring pins:
 - 1) Remove the Signal Interface Unit 2 (SIU 2), M24509, from the RPMP P210 (AMM TASK 24-09-00-000-814-002).
 - 2) Remove the P200 Power Panel Controller (PPC) from the Right Power Panel P200 (AMM TASK 24-09-00-000-816-002).
 - 3) Remove the R FUEL JETT PUMP ELCU, M28212, from the P200 Power Panel.
 - 4) Disconnect connector DM28204 from the R Fuel Jettison Pump.
 - 5) Disconnect connector D21026 from the RPMP P210.
- (d) Do a wiring check from pin 2 on connector DM24509B for the SIU 2 to pin B32 on connector DM24501 for the PPC.
- (e) Do a wiring check from these pins on connector DM24501 for the PPC to these pins on connector DM28212 for the R Fuel Jett Pump ELCU:

DM24501	DM28212
pin B3	pin 5
pin B2	pin 6
pin B1	pin 7
pin B13	pin 8
pin B26	pin 9
pin B40	pin 10
pin B19	pin 2
pin B33	pin 13

- (f) Do a wiring check from pin 16 on connector D21026P to pin B18 on connector DM24501 for the P200 Power Panel Controller (PPC).

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- (g) Do a wiring check from pin B47 to pin B46 on connector DM24501 for the P200 PPC.
- (h) Do a wiring check from these pins on connector DM28212 for the R Fuel Jett Pump ELCU to these pins on connector DM28204 for the Right Fuel Jett Pump:

DM28212	DM28204
pin A2	pin B
pin B2	pin D
pin C2	pin F

- (i) Repair the wiring problems that you find.
- (j) Install these components removed for access:
 - 1) Install the Signal Interface Unit 2 (SIU 2) M24509 from the RPMP P210 (AMM TASK 24-09-00-400-810-002).
 - 2) Install the P200 Power Panel Controller (PPC) M24501 from the Right Power Panel P200 (AMM TASK 24-09-00-400-812-002).
 - 3) Install the R FUEL JETT PUMP ELCU M28212 from the P200 Power Panel.
 - 4) Re-connect connector DM28204 from the R Fuel Jettison Pump.
 - 5) Re-connect connector D21026 from the RPMP P210.
- (k) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (l) Supply electrical power to the right main AC bus, at the Electrical Control Panel, on the P5 Overhead Panel.
- (m) Do the self-test for the P200 Right Power Management Pane (AMM TASK 24-09-00-730-801).
- (n) Push the FUEL JETTISON ARM switch to the ARMED position.
NOTE: Let the jettison pumps run for 15 seconds.
- (o) Push the FUEL JETTISON ARM switch to the OFF position.
- (p) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.
- (4) Put the DEFUEL VALVE switch on IRP, P28, to the CLOSE position.
- (5) Close this access door:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

————— END OF TASK —————

838. Relay (L Fuel Jettison Pump CTRL) is not in commanded position - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-31003.

B. Possible Cause

- (1) DEFUEL ENABLE RELAY, K28251
- (2) L-JTSN PUMP CTRL RLY, K28247

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- (3) L-JTSN ENABLE RELAY, K28249

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- (4) L-JTSN PUMP AUTO SHUT OFF, K28025
(5) L-JTSN PUMP AUTO SHUT OFF DRVR, K28023

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- (6) Signal Interface Unit (SIU) 2, M24505
(7) Wiring

C. Circuit Breakers

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

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	10	C28637	DFUEL VLVS

D. Related Data

- (1) WDM 28-31-11

E. Initial Evaluation



DO NOT OPERATE FUEL JETTISON NOZZLE VALVES IF THE AIR-GROUND SYSTEM IS SET TO THE AIR MODE. THIS CAN CAUSE INJURIES TO PERSONNEL.

- (1) Make sure the airplane is in the Ground Mode for this procedure (AMM TASK 32-09-00-860-801).



DO NOT OPERATE A FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. IT CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE TANK WHICH WILL CAUSE A FIRE OR EXPLOSION. FIRES AND EXPLOSIONS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT. THE EXCEPTION TO THIS APPLIES DURING THE REPAIR CONFIRMATION JUMPER PROCEDURE.

- (2) Obey these precautions at all times during this task:
- (a) To operate any of the Fuel Pumps, you must be in the Flight Compartment to continuously monitor the fuel quantity and the Low Pressure Indication in the applicable tank.

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NOTE: The Fault light on the ARM Switch comes on to show low pressure for the Jettison Pumps. Set the ARM Switch to the OFF position if this occurs. In the Repair Confirmation, the Low Pressure Indication is caused by a Jumper, the Pump Motors are not operated with low pressure. For this part of the procedure, do not set the ARM Switch to the OFF position if the Fault light shows low pressure.

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- (b) Immediately set the JETTISON ARM Switch, S4, to the OFF position if the Fault Light on the ARM Switch comes ON and stays ON.
- (3) Make sure there is a minimum of 15,000 lb (6804 kg) of fuel in the L Main Fuel Tank and 15,000 lb (6804 kg) of fuel in the R Main Fuel Tank for this procedure.
 - (a) Refuel the tanks, if it is necessary (Pressure Refueling, AMM TASK 12-11-01-650-801).
- (4) If the MAT shows ACTIVE for the Maintenance Message, do the Fault Isolation Procedure below.
- (5) If the MAT shows LATCHED for the Maintenance Message, do the Repair Confirmation at the end of the task.
 - (a) If the MAT shows ACTIVE or LATCHED for the Maintenance Message, then do the Fault Isolation procedure below.
 - (b) If the MAT shows NOT ACTIVE for the Maintenance Message (or if the Message does not show), then there was an intermittent fault.

F. Fault Isolation Procedure

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- (1) Run the Jettison pumps to attempt to clear the faults:
 - (a) Do the Repair Confirmation at the end of the task.
 - 1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation procedure.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

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- (2) If the problem appeared on the ground, do the steps that follow:
 - (a) In the Main Equipment Center, on the Left Override/Jettison Fuel Pump Relay Panel, P301, replace the DEFUEL ENABLE RELAY, K28251 (WDM 28-31-11).
 - (b) Do the Repair Confirmation at the end of this task.
- (3) In the Main Equipment Center, on the Left Override/Jettison Fuel Pump Relay Panel, P301, replace the L-JTSN PUMP CTRL RLY, K28247 (WDM 28-31-11).
 - (a) Do the Repair Confirmation at the end of this task.
- (4) In the Main Equipment Center, on the Left Override/Jettison Fuel Pump Relay Panel, P301, replace the L-JTSN ENABLE RELAY, K28249 (WDM 28-31-23).
 - (a) Do the Repair Confirmation at the end of this task.

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- (5) In the Main Equipment Center, on the Left Override/Jettison Fuel Pump Relay Panel, P301, replace the L-JTSN PUMP AUTO SHUT OFF, K28025 (WDM 28-31-11).
 - (a) Do the Repair Confirmation at the end of this task.
- (6) In the Main Equipment Center, on the Left Override/Jettison Fuel Pump Relay Panel, P301, replace the L-JTSN PUMP AUTO SHUT OFF DRVR, K28023 (WDM 28-31-11).
 - (a) Do the Repair Confirmation at the end of this task.

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- (7) On the Power Management Panel-Left, P110, do a check of the SIU 2, M24505 (AMM TASK 24-09-00-700-801-002).
 - (a) Do the Repair Confirmation at the end of this task.
- (8) Do these wiring checks (WDM 28-31-11):
 - (a) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (b) On the Left Override/Jettison Fuel Pump Relay Panel, P301, remove the L-JTSN PUMP CTRL RLY, K28247.
- (c) Do a wiring check between the Solder Points for the L-JTSN PUMP CTRL RLY, K28247 and the Power Management Panel-Left, P110.

<u>Solder Point</u>	<u>D11005</u>
pin 12	pin 14

<u>Solder Point</u>	<u>D11034</u>
pin 11	pin 20

- (d) Do a wiring check between the Power Management Panel-Left, P110, Connector D11034 and the SIU 2 Connector DM24505C.

<u>D11034</u>	<u>DM24505C</u>
pin 20	pin 2

- (e) Repair the wiring.
- (f) Remove the safety tag and close this circuit breaker:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

- (g) On the Left Override/Jettison Fuel Pump Relay Panel, P301, install the L-JTSN PUMP CTRL RLY, K28247.
- (h) Do the Repair Confirmation at the end of this task.

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- (i) If the problem continues, do the steps that follow:
- 1) Remove electrical power from the airplane (AMM TASK 24-22-00-860-806).
 - 2) On the Power Management Panel-Left, P110, do a wiring check at Connector D11007 .

D11007	D11007
pin 4	pin 7
 - 3) Repair the wiring.
 - 4) Supply electrical power (AMM TASK 24-22-00-860-805).
 - 5) Do the following ELMS - special function tests to make sure all the electronic LMRs in the corresponding power management panel operate correctly:
 - a) Initiate P110 CCU self test.
 - b) Initiate P210 CCU self test.
 - c) Initiate P310 CCU self test.
 - d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation procedure.
 - e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 6) Do the Repair Confirmation at the end of this task.

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

G. Repair Confirmation

- (1) Do these steps to verify that you corrected the problem:
- (a) If not already done, open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

NOTE: The refueling station door must be open for the Pump to operate correctly.
 - (b) On the L Integrated Refuel Panel, P28, put the DEFUEL VLV SW, S5, to the OPEN position.
 - (c) On the Overhead Panel, P5, push the JETTISON ARM Switch, S4, to the ARMED position.
 - (d) Let the Pump run for 15 seconds.
 - (e) On the Overhead Panel, P5, push the JETTISON ARM Switch, S4, to the OFF position.
 - (f) If the MAT shows NOT ACTIVE for the Maintenance Message (or if the Message does not show), you corrected the problem.
 - 1) On the L Integrated Refuel Panel, P28, put the DEFUEL VLV SW, S5, to the CLOSED position.
 - 2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

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ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083 (Continued)

- (g) If the MAT shows ACTIVE or LATCHED for the Maintenance Message, then continue with the Fault Isolation Procedure at the subsequent step.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

H. Repair Confirmation

- (1) Do these steps to make sure that you corrected the problem (Showing a Maintenance Page, AMM TASK 31-61-00-800-804):
- (a) Access the Fuel Management Maintenance Page.
 - 1) Make sure the status of the main L FUEL JETTISON PUMP, M28104, shows OFF and NO PRESS.
 - (b) Open this access panel:
(AMM TASK 06-44-00-800-802)

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
 - (c) On the L Integrated Refuel Panel, P28, put the DEFUEL VLV SW, S5, to the OPEN position.
 - (d) On the Overhead Panel, P5, push the JETTISON ARM Switch, S4, to the ARMED position.
 - (e) Listen to make sure the L FUEL JETTISON PUMP, M28104, operates.
 - (f) Access the Fuel Management Maintenance Page (Showing a Maintenance Page, AMM TASK 31-61-00-800-804).
 - 1) Make sure the status of the Left MAIN JETT pump, M28104, shows ON and PRESS.
 - (g) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) and the EICAS status message FUEL JETT PUMP L does not show, you corrected the fault.
 - (h) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
 - (i) Disconnect the electrical connector D7405P in the Left Main wheel well at AL 1281 (WDM 28-31-11).
 - (j) Connect a jumper between pins 4 and 5 of electrical connector D7405P.
NOTE: The Jumper is on the ship side connector, not the Pressure Switch.
 - 1) Make a record of the time.
 - (k) Listen to make sure the L FUEL JETTISON PUMP, M28104, turns off in 20 seconds or less.
 - (l) Access the Fuel Management Maintenance Page.
 - 1) Make sure the status of the main L FUEL JETTISON PUMP, M28104, shows ON and NO PRESS.
 - (m) Wait for an additional 15 seconds minimum.
 - (n) On the Overhead Panel, P5, push the JETTISON ARM Switch, S4, to the OFF position".
 - (o) On the L Integrated Refuel Panel, P28, put the DEFUEL VLV SW, S5, to the CLOSED position.

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- (p) Disconnect the jumper between pins 4 and 5 of electrical connector D7405P.
- (q) Connect the electrical connector D7405P in the Left Main wheel well at AL 1281.
- (r) On the L Integrated Refuel Panel, P28, put the DEFUEL VLV SW, S5, to the OPEN position.
- (s) On the Overhead Panel, P5, push the JETTISON ARM Switch, S4, to the ARMED position.
- (t) Listen to make sure the L FUEL JETTISON PUMP, M28104, operates.
- (u) Access the Fuel Management Maintenance Page.

- 1) Make sure the status of the main L FUEL JETTISON PUMP, M28104, shows ON and PRESS.

NOTE: The EICAS Status Message FUEL JETT PUMP L should clear (not show) after approximately 30 seconds of Pump operation.

- (v) On the Overhead Panel, P5, push the JETTISON ARM Switch, S4, to the OFF position.
- (w) On the L Integrated Refuel Panel, P28, put the DEFUEL VLV SW, S5, to the CLOSED position.
- (x) Close this access panel:
(AMM TASK 06-44-00-800-802)

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- (y) If the MAT shows NOT ACTIVE for the Maintenance Message (or if the Message does not show) and the Engine Indication and Crew Alerting System (EICAS) Status Message FUEL JETT PUMP L does not show, you corrected the problem.
- (z) If the MAT shows ACTIVE or LATCHED for the Maintenance Message, then continue with the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

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840. Relay (R Fuel Jettison Pump CTRL) is not in commanded position - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-31001.

B. Possible Cause

- (1) DEFUEL ENABLE RELAY, K28251
- (2) R-JTSN PUMP CTRL RLY, K28248
- (3) R-JTSN ENABLE RELAY, K28252

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- (4) R-JTSN PUMP AUTO SHUT OFF, K28026
- (5) R-JTSN PUMP AUTO SHUT OFF DRVR, K28024

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- (6) SIU 2, M24509
- (7) Wiring

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C. Circuit Breakers

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

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	22	C28645	L FUEL JETT PUMP CTRL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	10	C28637	DFUEL VLVS

D. Related Data

- (1) WDM 28-31-11
- (2) WDM 28-31-21
- (3) WDM 28-31-23

E. Initial Evaluation



DO NOT OPERATE FUEL JETTISON NOZZLE VALVES IF THE AIR-GROUND SYSTEM IS SET TO THE AIR MODE. THIS CAN CAUSE INJURIES TO PERSONNEL.

- (1) Make sure the airplane is in the Ground Mode for this procedure (AMM TASK 32-09-00-860-801).



DO NOT OPERATE A FUEL PUMP IF THE AMBER PRESS LIGHT COMES ON AND STAYS ON. IT CAN CAUSE THE IGNITION OF THE FUEL FUMES IN THE TANK WHICH WILL CAUSE A FIRE OR EXPLOSION. FIRES AND EXPLOSIONS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT. THE EXCEPTION TO THIS APPLIES DURING THE REPAIR CONFIRMATION JUMPER PROCEDURE.

- (2) Obey these precautions at all times during this task:
- (a) To operate any of the Fuel Pumps, you must be in the Flight Compartment to continuously monitor the Fuel Quantity and the Low Pressure Indication in the applicable tank.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

NOTE: The Fault light on the ARM Switch comes on to show low pressure for the Jettison Pumps. Set the ARM Switch to the OFF position if this occurs. In the Repair Confirmation, the Low Pressure Indication is caused by a Jumper, the Pump Motors are not operated with low pressure. For this part of the procedure, do not set the ARM Switch to the OFF position if the Fault Light shows low pressure.

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- (b) Immediately set the JETTISON ARM Switch, S4 to the OFF position if the Fault Light on the ARM Switch comes ON and stays ON.
- (3) Make sure there is a minimum of 15,000 lb (6804 kg) of fuel in the R Main Fuel Tank and 15,000 lb (6804 kg) of fuel in the L Main Fuel Tank for this procedure.
 - (a) Refuel the tanks, if it is necessary (Pressure Refueling, AMM TASK 12-11-01-650-801).
- (4) If the MAT shows ACTIVE for the Maintenance Message, do the Fault Isolation Procedure below.
- (5) If the MAT shows LATCHED for the Maintenance Message, do the Repair Confirmation at the end of the task.
 - (a) If the MAT shows ACTIVE or LATCHED for the Maintenance Message, then do the Fault Isolation procedure below.
 - (b) If the MAT shows NOT ACTIVE for the Maintenance Message (or if the Message does not show), then there was an intermittent problem.

F. Fault Isolation Procedure

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- (1) Run the Jettison pumps to attempt to clear the faults:
 - (a) Do the Repair Confirmation at the end of the task.
 - 1) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation procedure.
 - 2) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

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- (2) If the problem appeared on the ground, do the steps that follow:
 - (a) In the Main Equipment Center, on the Left Override/Jettison Fuel Pump Relay Panel, P301, replace the DEFUEL ENABLE RELAY, K28251 (WDM 28-31-11).
 - (b) Do the Repair Confirmation at the end of this task.
- (3) In the Main Equipment Center, on the Right OVRD/Jettison Fuel Pump Relay Panel, P302, replace the R-JTSN PUMP CTRL RLY, K28248 (WDM 28-31-21).
 - (a) Do the Repair Confirmation at the end of this task.
- (4) In the Main Equipment Center, on the Right OVRD/Jettison Fuel Pump Relay Panel, P302, replace the R-JTSN ENABLE RELAY, K28252 (WDM 28-31-23).
 - (a) Do the Repair Confirmation at the end of this task.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- (5) In the Main Equipment Center, on the Right OVRD/Jettison Fuel Pump Relay Panel, P302, replace the R-JTSN PUMP AUTO SHUT OFF, K28026 (WDM 28-31-21).
 - (a) Do the Repair Confirmation at the end of this task.
- (6) In the Main Equipment Center, on the Right OVRD/Jettison Fuel Pump Relay Panel, P302, replace the R-JTSN PUMP AUTO SHUT OFF DRVR, K28024 (WDM 28-31-21).
 - (a) Do the Repair Confirmation at the end of this task.

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- (7) On the Power Management Panel-Right, P210, do a check of the SIU 2, M24509 .This is the task: Signal Interface Unit - Exchange Check, AMM TASK 24-09-00-700-801-002

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- (a) Do the Repair Confirmation at the end of this task.
- (8) Do these wiring checks (WDM 28-31-21):
 - (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (b) On the Right OVRD/Jettison Fuel Pump Relay Panel, P302, remove the R-JTSN PUMP CTRL RLY, K28248.
- (c) Do a wiring check between the Solder Points for the R-JTSN PUMP CTRL RLY, K28248 and the Power Management Panel-Right, P210.

K28248 Solder

Point	D21026
pin 12	pin 16

K28248 Solder Point	D21036
pin 11	pin 34

- (d) Do a wiring check between the Power Management Panel-Right, P210, Connector D21036 and the SIU 2 Connector DM24509C

D21036	DM24509C
pin 34	pin 4

- (e) Repair the wiring.
- (f) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	14	C28646	R FUEL JETT PUMP CTRL

- (g) On the Right OVRD/Jettison Fuel Pump Relay Panel, P302, install the R-JTSN PUMP CTRL RLY, K28248.
- (h) Do the Repair Confirmation at the end of this task.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

- (i) If the problem continues, do the steps that follow:
 - 1) Remove electrical power from the airplane (AMM TASK 24-22-00-860-806).
 - 2) On the Right OVRD/Jettison Fuel Pump Relay Panel, P302, do a wiring check between the Connectors D21004 and D21007.

D21004	D21007
pin 48	pin 5
 - 3) Repair the wiring.
 - 4) Supply electrical power (AMM TASK 24-22-00-860-805).
 - 5) Do the following ELMS - special function tests to make sure all the electronic LMRs in the corresponding power management panel operate correctly:

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- a) Initiate P110 CCU self test.
 - b) Initiate P210 CCU self test.
 - c) Initiate P310 CCU self test.
 - d) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue the Fault Isolation procedure.
 - e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 6) Do the Repair Confirmation at the end of this task.

ARO 001-004 PRE SB 777-28-0078; ARO 005-010 PRE SB 777-28-0083

G. Repair Confirmation

(1) Do these steps to verify that you corrected the problem:

- (a) If not already done, open this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

NOTE: The Refueling Station Door must be open for the Pump to operate correctly.

- (b) On the Integrated Refueling Panel, P28, put the DEFUEL VLV SW, S5, to the OPEN position.
- (c) On the Overhead Panel, P5, push the JETTISON ARM Switch, S4, to the ARMED position.
- (d) Let the Pump run for 15 seconds.
- (e) On the Overhead Panel, P5, push the JETTISON ARM Switch, S4, to the OFF position.
- (f) If the MAT shows NOT ACTIVE for the Maintenance Message (or if the Message does not show), you corrected the problem.
 - 1) On the Integrated Refueling Panel, P28, put the DEFUEL VLV SW, S5, to the CLOSED position.
 - 2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (g) If the MAT shows ACTIVE or LATCHED for the Maintenance Message, then continue with the Fault Isolation Procedure at the subsequent step.

ARO 011-999; ARO 001-004 POST SB 777-28-0078; ARO 005-010 POST SB 777-28-0083

H. Repair Confirmation

- (1) Do these steps to make sure that you corrected the problem (Showing a Maintenance Page, AMM TASK 31-61-00-800-804):
- (a) Access the Fuel Management Maintenance Page
 - 1) Make sure the status of the RIGHT FUEL JTSN PUMP, M28204 shows OFF and NO PRESS.
 - (b) Open this access panel:
(AMM TASK 06-44-00-800-802)

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<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (c) On the Integrated Refueling Panel, P28, put the DEFUEL VLV SW, S5, to the OPEN position.
- (d) On the Overhead Panel, P5, push the JETTISON ARM Switch, S4, to the ARMED position.
- (e) Listen to make sure the RIGHT FUEL JTSN PUMP, M28204 operates.
- (f) Access the Fuel Management Maintenance Page (Showing a Maintenance Page, AMM TASK 31-61-00-800-804).
 - 1) Make sure the status of the Right MAIN JETT pumps show ON and PRESS.
- (g) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show) and the EICAS status message FUEL JETT PUMP R does not show, you corrected the fault.
- (h) If the MAT shows ACTIVE or LATCHED for the maintenance message, then continue.
- (i) Disconnect the electrical connector D7406P in the Right Main wheel well at AL 1281 (WDM 28-31-21).
- (j) Connect a jumper between pins 7 and 8 of electrical connector D7406P.

NOTE: The Jumper is on the ship side connector, not the Pressure Switch.

 - 1) Make a record of the time.
- (k) Listen to make sure the RIGHT FUEL JTSN PUMP, M28204 turns OFF in 20 seconds or less.
- (l) Access the Fuel Management Maintenance Page
 - 1) Make sure the status of the main RIGHT FUEL JTSN PUMP, M28204 shows ON and NO PRESS.
- (m) Wait for an additional 15 seconds minimum.
- (n) On the Overhead Panel, P5, push the JETTISON ARM Switch, S4, to the OFF position.
- (o) On the Integrated Refueling Panel, P28, put the DEFUEL VLV SW, S5, to the CLOSED position.
- (p) Disconnect the jumper between pins 7 and 8 of electrical connector D7406P.
- (q) Connect the electrical connector D7406P in the Right Main wheel well at AL 1281.
- (r) On the Integrated Refueling Panel, P28, put the DEFUEL VLV SW, S5, to the OPEN position.
- (s) On the Overhead Panel, P5, push the JETTISON ARM Switch, S4, to the ARMED position.
- (t) Listen to make sure the RIGHT FUEL JTSN PUMP, M28204 operates.
- (u) Access the Fuel Management Maintenance Page
 - 1) Make sure the status of the main R JETTISON PUMP PRESS SW, S28211 shows ON and PRESS.

NOTE: The EICAS Status Message FUEL JETT PUMP R should clear (not show) after approximately 30 seconds of Pump operation.
- (v) On the Overhead Panel, P5, push the JETTISON ARM Switch, S4, to the OFF position.

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- (w) On the Integrated Refueling Panel, P28, put the DEFUEL VLV SW, S5, to the CLOSED position.
- (x) Close this access panel:
(AMM TASK 06-44-00-800-802)

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door
- (y) If the MAT shows NOT ACTIVE for the Maintenance Message (or if the Message does not show) and the EICAS Status Message FUEL JETT PUMP R is cleared (does not show), you corrected the problem.
- (z) If the MAT shows ACTIVE or LATCHED for the Maintenance Message, then continue with the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

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801. Fuel Quantity Processor (FQPU) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 24-11111, 24-11789, 24-12250, 24-12254, 28-18801, 28-20050.

B. Description

- (1) Internal problems with the FQPU can also cause problems with refueling.

NOTE: If there are x's on the maintenance page adjacent to the fuel height and VOS indications refer to the task: Fuel Quantity Processor Unit Reversionary Mode - Fault Isolation, 28-41 TASK 852, for more data.

- (a) If there is a fault that affects only one of the two redundant FQIS channels (single channel fault), one of the fueling valve stays open during the refueling operation. Thus, the refueling operation can continue.

- (2) AIRPLANES WITHOUT FQPU PART NUMBER 0330KPU02, 0330KPU03, 0335KPU02, 0335KPU03 OR 0320KPU01;

The FQPU can cause a fuel tank to blank with one or more tank unit failures.

NOTE: This fault can occur when operating at higher temperatures.

NOTE: Multiple tank units can show faults with the same timestamp. The MAT can be used to find which tank unit shows a fault first. It is recommended to do troubleshooting for tank unit faults with one timestamp first.

NOTE: Intermittent fuel tank blanking can occur until all tank unit failures are corrected.

C. Initial Evaluation

- (1) Do these steps if the maintenance message 28-20050 shows:

NOTE: AIRPLANES WITH FQPU SOFTWARE NUMBER 2866-SIB-230-05 INSTALLED IN FQPU PART NUMBER 0320KPU01, 286C-SMI-000-01 OR 286F-SMI-00-02 INSTALLED IN FQPU PART NUMBERS 0330KPU01 OR 0335KPU01; OR FQPU PART NUMBER 0330KPU01 OR 0335KPU01 WITH MODIFICATION IDENTIFIER MOD1, MOD2, MOD3 OR MOD4; If maintenance message 28-20050 is not correlated to an EICAS message it is a nuisance condition and no further maintenance actions are necessary. If maintenance message 28-20050 is correlated to an EICAS message, then continue.

- (a) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
521DB	Refueling Station Door

- (b) Open these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2

- (c) Make sure the left or right transfer bus is powered by External Power. To supply power put the applicable external power switch to the ON position, on the P5 overhead panel.

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- (d) Close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2

- (e) If the MAT shows ACTIVE for the maintenance message, continue with the fault isolation.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), then there was an intermittent fault.
- (2) Do these steps to re-rack the FQPU:
- NOTE: Re-racking the FQPU can isolate intermittent faults related to maintenance message 28-20050.
- (a) Do this task: Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801
- (b) Wait 10 minutes.
- (c) Re-install the same FQPU: Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801
- (d) If the MAT shows ACTIVE for the maintenance message, continue with the fault isolation.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Replace the fuel quantity processor unit (FQPU), M28002.

These are the tasks:

Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,

Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

- (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- NOTE: Do these steps only if the EICAS message 284-002-00 showed.
- (2) Do input monitoring for the left and right side to find which side the problem is on, do this task: How to Use Input Monitoring, AMM TASK 45-10-00-760-801.

NOTE: For the left side, use the procedure "How to Monitor an ARINC 629 Full Wordstring" to enter one of these two wordstrings:

L/629/SYS L/F2C/1/2-2/12-15

R/629/SYS L/F2C/1/2-2/12-15

NOTE: For the right side, use the procedure "How to Monitor an ARINC 629 Full Wordstring" to enter one of these two wordstrings:

R/629/SYS R/F2C/1/2-2/12-15

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L/629/SYS R/F2C/1/2-2/12-15

NOTE: The ARINC 629 signal specification has these elements:

Input destination

Bus type

Bus ID

Label

Channel ID

Word range

Validity word and bit

- (a) Input destination = "L" or "R" (for Left or right AIMS cabinet)
 - (b) Bus type = "629" (for ARINC 629)
 - (c) Bus ID = "SYS L" or "SYS R" (as applicable, for the systems bus Left or Right)
 - (d) Label = F2C (EICAS display wordstring)
 - (e) Channel ID (CID) = 1
 - (f) Word range = 2 (parameter validity word)
 - (g) Validity word and Bit = 12-15 (refresh counter bits)
- (3) Make sure the Bits 12-15 are counting (changing) and the word "SAMPLING" shows. This means FQIS is active on that bus.
- (4) If the FQIS is not active on the bus there is a problem. This means the refresh counters, BITS 12-15, will not be counting (the numbers will not be changing or there is no data) and the word "SAMPLING" will not be shown.
- (5) If the FQIS is not active on the left side (Bits are not counting, the MAT does not show the word "SAMPLING" or there is no data), do these steps:
- (a) Replace the ARINC 629 coupler, B28041, in the Data Bus Panel P111.

These are the tasks:

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

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

NOTE: This coupler connects the FQPU to the Systems 629 Bus-L.

- 1) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (b) Do this check of the wiring:
- 1) Remove the FQPU, M28002. To remove it, do this task: Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801.
 - 2) Disconnect the connector DB28041 from the coupler B28041, on the Data Bus Panel P111 (WDM 28-41-11).
 - 3) Do a wiring check between these pins of connector DB28041 on the Data Bus Panel P111 and the FQPU connector DM28002AA, on the E5-3 Shelf:

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DB28041

pin 1		pin 1TR
pin 2		pin 1T
pin 4		pin 2TR
pin 5		pin 2T

DM28002AA

- 4) If you find a problem with the wiring, then do these steps:
 - a) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - b) Re-connect the connector DB28041.
 - c) Re-install the FQPU, M28002. To install it, do this task: Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.
- 5) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (6) If the FQIS is not active on the right side (Bits are not counting, the MAT does not display the word "SAMPLING" or there is no data), do these steps:

- (a) Replace the ARINC 629 coupler, B28042, in the Data Bus Panel P211.

These are the tasks:

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

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

NOTE: This coupler connects the FQPU to the Systems 629 Bus-R.

- 1) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- 2) If the MAT shows ACTIVE for the maintenance message, then continue.
- (b) Do this check of the wiring:
 - 1) Remove the FQPU, M28002. To remove it, do this task: Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801.
 - 2) Disconnect the connector DB28042 from the coupler B28042, on the Data Bus Panel P211 (WDM 28-41-11).
 - 3) Do a wiring check between these pins of connector DB28042 on the P211 Data Bus Panel and the FQPU connector DM28002AB, on the E5-3 Shelf:

DB28042

pin 1	.....	pin 1TR
pin 2	.....	pin 1T
pin 4	.....	pin 2TR
pin 5	.....	pin 2T

DM28002AB

- 4) If you find a problem with the wiring, then do these steps:
 - a) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - b) Re-connect the connector DB28042.
 - c) Re-install the FQPU, M28002. To install it, do this task: Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

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

————— END OF TASK —————

802. Fuel Quantity Processor Unit (FQPU) to Systems 629 Bus-L Communications Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 28-18840, 28-20001, 28-20005, 28-29401.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do input monitoring for the Left AIMS cabinet, do this task: How to Use Input Monitoring, AMM TASK 45-10-00-760-801.

NOTE: The required signal specification wordstring for the Left AIMS cabinet is: L/629/SYS L/F12/1/2-2

NOTE: The ARINC 629 signal specification has these elements:

- Input destination
- Bus type
- Bus ID
- Label
- Channel ID
- Word range

- (a) Type in the following information:

- Input destination = "L" (for Left AIMS cabinet)
- Bus type = "629" (for ARINC 629)
- Bus ID = "SYS L" (for the systems bus Left)
- Label = F12 (for FQPU periodic fault report a wordstring)
- Channel ID = 1
- Word range = 2 (parameter validity word)

- (b) Make sure the Bits 12-15 are counting (changing) and the word "SAMPLING" shows. This means FQIS is active on that bus.

- (c) If the FQIS is not active on the left side (Bits are not counting, the MAT does not show the word "SAMPLING" or there is no data), then continue.

- (2) Replace the Fuel Quantity Processor Unit (FQPU), M28002. These are the tasks:

- Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801
- Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801

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

- (b) If the MAT shows ACTIVE for the maintenance message, then continue.

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- (3) Replace the ARINC 629 Coupler, B28041, in the Data Bus Panel P111. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801

NOTE: This coupler connects the FQPU to the Systems 629 Bus-L.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Do this check of the wiring:
- (a) Remove the FQPU, M28002. To remove it, do this task: Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801.
- (b) Disconnect the Connector DB28041 from the Coupler B28041, on the Data Bus Panel P111 (WDM 28-41-11).
- (c) Do a wiring check between these pins of Connector DB28041 on the Data Bus Panel P111 and the FQPU Connector DM28002AA, on the E5-3 Shelf:

DB28041	DM28002AA
pin 1	pin 1TR
pin 2	pin 1T
pin 4	pin 2TR
pin 5	pin 2T

- (d) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect the Connector DB28041.
 - 3) Re-install the FQPU, M28002. To install it, do this task: Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

803. Fuel Quantity Processor to Systems 629 Bus-R Communications Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 28-18860, 28-20002, 28-20006, 28-29601.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do input monitoring for the Right AIMS cabinet, do this task: How to Use Input Monitoring, AMM TASK 45-10-00-760-801.

NOTE: The required signal specification wordstring for the Right AIMS cabinet is: R/629/SYS R/F12/1/2-2

NOTE: The ARINC 629 signal specification has these elements:

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- Input destination
 - Bus type
 - Bus ID
 - Label
 - Channel ID
 - Word range
- (a) Type in the following information:
- Input destination = "R" (for Right AIMS cabinet)
 - Bus type = "629" (for ARINC 629)
 - Bus ID = "SYS R" (for the systems bus Right)
 - Label = F12 (for FQPU periodic fault report a wordstring)
 - Channel ID = 1
 - Word range = 2 (parameter validity word)
- (b) Make sure the Bits 12-15 are counting (changing) and the word "SAMPLING" shows. This means FQIS is active on that bus.
- (c) If the FQIS is not active on the right side (Bits are not counting, the MAT does not show the word "SAMPLING" or there is no data), then continue.
- (2) Replace the fuel quantity processor unit (FQPU), M28002. These are the tasks:
- Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801
 - Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the ARINC 629 Coupler, B28042, in the Data Bus Panel P211. These are the tasks:
- ARINC 629 Current-Mode Coupler Removal, AMM TASK 23-91-01-000-801
 - ARINC 629 Current-Mode Coupler Installation, AMM TASK 23-91-01-400-801
- NOTE:** This coupler connects the FQPU to the Systems 629 Bus-R.
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Do this check of the wiring:
- (a) Remove the FQPU, M28002. To remove it, do this task: Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801.
- (b) Disconnect the Connector DB28042 from the Coupler B28042, on the Data Bus Panel P211 (WDM 28-41-11).
- (c) Do a wiring check between these pins of Connector DB28042 on the P211 Data Bus Panel and the FQPU connector DM28002AB, on the E5-3 Shelf:

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DB28042

pin 1 pin 1TR
pin 2 pin 1T
pin 4 pin 2TR
pin 5 pin 2T

DM28002AB

- (d) If you find a problem with the wiring, then do these steps:
- 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect the Connector DB28042.
 - 3) Re-install the FQPU, M28002. To install it, do this task: Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

— END OF TASK —

804. Harness Assy Not Connected (Any Tank) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 28-20021, 28-20036, 28-20056, 28-20057, 28-20104, 28-20105.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do these steps to check the wiring:
- (a) Disconnect the applicable spar connector plug.
 - (b) Inspect the spar connector for damage.

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- (c) If there is no damage, re-connect the applicable spar connector plug (SWPM 20-20-00 and SWPM 20-60-06).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

- 1) Make sure the bonding jumper is installed on the receptacle and that the bonding jumper terminal on the receptacle is sealed.
- 2) Make sure the wiring harness is shielded and that the shield ground is terminated (SWPM 20-20-00 and SWPM 20-10-15).

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28-AWL-04: CDCCL

- 3) Do this task: FQIS Wiring And Bonding - Inspection/Check, AMM TASK 05-55-54-200-801, to measure the resistance between the receptacle for the applicable wiring harness and the spar (primary structure).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

28-AWL-04: CDCCL

- a) Make sure the resistance is 0.003 ohm (3.0 milliohms) or less.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

- (d) If there is damage, replace the applicable airplane (out-of-tank) wiring harness or spar connector, as necessary.
- 1) Make sure the bonding jumper is installed on the receptacle and that the bonding jumper terminal on the receptacle is sealed.
 - 2) Make sure the wiring harness is shielded and that the shield ground is terminated (SWPM 20-20-00 and SWPM 20-10-15).

28-AWL-04: CDCCL

- 3) Do this task: FQIS Wiring And Bonding - Inspection/Check, AMM TASK 05-55-54-200-801, to measure the resistance between the receptacle for the applicable wiring harness and the spar (primary structure).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

28-AWL-04: CDCCL

- a) Make sure the resistance is 0.003 ohm (3.0 milliohms) or less.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

- (e) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
- (f) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (g) If the MAT shows ACTIVE for the maintenance message, then continue.
- (h) Remove the fuel quantity processor unit (FQPU) M28002, installed in the E5-3 shelf at the forward cargo door (AMM TASK 28-41-01-000-801).
- (i) Disconnect the applicable spar connector plug.



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DO NOT USE ELECTRICAL TEST EQUIPMENT ON THE IN-TANK WIRING HARNESS THAT IS NOT APPROVED FOR FUEL TANKS SWPM 20-20-00. IF YOU USE ELECTRICAL TEST EQUIPMENT THAT IS NOT APPROVED, DAMAGE TO EQUIPMENT AND INJURIES TO PERSONS CAN OCCUR.

- (j) Do a check between these pins on the airplane harness for applicable spar connector plug DM28101P and the connector DM28002AA for the FQPU.
- Refer to WDM 28-41-41 for Table 201.
 - Refer to WDM 28-41-41 for Table 202.
 - Refer to WDM 28-41-21 for Table 203.
 - Refer to WDM 28-41-22 for Table 204.
 - Refer to WDM 28-41-22 for Table 205 (Airplanes with raked wing tip).
 - Refer to WDM 28-41-42 for Table 206.
 - Refer to WDM 28-41-42 for Table 207.
 - Refer to WDM 28-41-31 for Table 208.
 - Refer to WDM 28-41-32 for Table 209.
 - Refer to WDM 28-41-32 for Table 210 (Airplanes with raked wing tip).

NOTE: It is OK to use a standard electrical tester on the airplane harness.

Table 201/28-41-00-993-806 Tank Units - Left Center Cheek Tank

TANK UNIT	EQUIP NUMBER	DM28002AA (FQPU CONN)	DM28101P (SPAR CONN)
1	M28147	pin A10	pin 1
		pin A9	pin 3
2	M28148	pin B10	pin 17
		pin B9	pin 33
3	M28149	pin C10	pin 5
		pin C9	pin 6
4	M28150	pin D10	pin 9
		pin D9	pin 22
5	M28151	pin E10	pin 11
		pin E9	pin 12
6	M28152	pin F10	pin 13
		pin F9	pin 27

Table 202/28-41-00-993-804 Tank Units - Left Side Wing Center Section

TANK UNIT	EQUIP NUMBER	DM28002AA (FQPU CONN)	DM28101P (SPAR CONN)
7	M28153	pin G10	pin 15
		pin G9	pin 31

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Table 202/28-41-00-993-804 Tank Units - Left Side Wing Center Section (Continued)

TANK UNIT	EQUIP NUMBER	DM28002AA (FQPU CONN)	DM28101P (SPAR CONN)
8	M28154	pin H10	pin 14
		pin H9	pin 29
9	M28155	pin A11	pin 28
		pin B11	pin 4
10	M28156	pin E12	pin 30
		pin F12	pin 32

Table 203/28-41-00-993-807 Tank Units Left Inboard Main Fuel Tank

TANK UNIT	EQUIP NUMBER	DM28002AA (FQPU CONN)	DM28103P (SPAR CONN)
1	M28074	pin A1	pin 1
		pin B1	pin 3
2	M28075	pin E1	pin 17
		pin D1	pin 33
3	M28076	pin F1	pin 5
		pin G1	pin 6
4	M28077	pin K1	pin 9
		pin J1	pin 22
5	M28078	pin A2	pin 11
		pin B2	pin 12
6	M28079	pin E2	pin 13
		pin D2	pin 27
7	M28080	pin F2	pin 14
		pin G2	pin 29
8	M28081	pin K2	pin 15
		pin J2	pin 31

Table 204/28-41-00-993-808 Tank Units Left Outboard Main Fuel Tank

TANK UNIT	EQUIP NUMBER	DM28002AA (FQPU CONN)	DM28102P (SPAR CONN)
9	M28082	pin A3	pin 1
		pin B3	pin 3
10	M28083	pin A4	pin 2
		pin B4	pin 7

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Table 204/28-41-00-993-808 Tank Units Left Outboard Main Fuel Tank (Continued)

TANK UNIT	EQUIP NUMBER	DM28002AA (FQPU CONN)	DM28102P (SPAR CONN)
11	M28084	pin A5	pin 5
		pin B5	pin 6
12	M28085	pin E5	pin 9
		pin D5	pin 22
13	M28086	pin F5	pin 11
		pin G5	pin 12
14	M28087	pin K5	pin 13
		pin J5	pin 27
15	M28088	pin A6	pin 14
		pin B6	pin 29
16	M28089	pin E6	pin 15
		pin D6	pin 31
17	M28090	pin F6	pin 17
		pin G6	pin 33
18	M28091	pin K6	pin 18
		pin J6	pin 19
19	M28092	pin A7	pin 20
		pin B7	pin 36
20	M28093	pin E7	pin 21
		pin D7	pin 38

Table 205/28-41-00-993-809 Tank Units Left Outboard Main Fuel Tank

TANK UNIT	EQUIP NUMBER	DM28002AD (FQPU CONN)	DM28202P (SPAR CONN)
21	M28110	pin A1	pin 40
		pin B1	pin 41
22	M28111	pin C1	pin 35
		pin D1	pin 37
23	M28112	pin A2	pin 4
		pin B2	pin 8
24	M28113	pin C2	pin 16
		pin D2	pin 34
25	M28114	pin A3	pin 30
		pin B3	pin 32

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Table 205/28-41-00-993-809 Tank Units Left Outboard Main Fuel Tank (Continued)

TANK UNIT	EQUIP NUMBER	DM28002AD (FQPU CONN)	DM28202P (SPAR CONN)
26	M28115	pin C3	pin 26
		pin D3	pin 28
27	M28116	pin A4	pin 24
		pin B4	pin 25
28	M28117	pin C4	pin 10
		pin D4	pin 23

Table 206/28-41-00-993-810 Tank Units - Right Center Cheek Tank

TANK UNIT	EQUIP NUMBER	DM28002A (FQPU CONN)	DM28201P (SPAR CONN)
1	M28247	pin A1	pin 1
		pin A2	pin 3
2	M28248	pin B1	pin 2
		pin B2	pin 7
3	M28249	pin C1	pin 5
		pin C2	pin 6
4	M28250	pin D1	pin 9
		pin D2	pin 22
5	M28251	pin E1	pin 11
		pin E2	pin 12
6	M28252	pin F1	pin 13
		pin F2	pin 14

Table 207/28-41-00-993-805 Tank Units - Right Side Wing Center Section

TANK UNIT	EQUIP NUMBER	DM28002AB (FQPU CONN)	DM28201P (SPAR CONN)
7	M28253	pin G1	pin 19
		pin G2	pin 20
8	M28254	pin E15	pin 16
		pin F15	pin 17
9	M28255	pin E14	pin 30
		pin F14	pin 31
10	M28256	pin E13	pin 10
		pin F13	pin 23

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Table 208/28-41-00-993-811 Tank Units Right Inboard Main Fuel Tank

TANK UNIT	EQUIP NUMBER	DM28002AB (FQPU CONN)	DM28203P (SPAR CONN)
1	M28046	pin A4	pin 1
		pin B4	pin 3
2	M28047	pin E4	pin 17
		pin D4	pin 33
3	M28048	pin F4	pin 5
		pin G4	pin 6
4	M28049	pin K4	pin 9
		pin J4	pin 22
5	M28050	pin A5	pin 11
		pin B5	pin 12
6	M28051	pin E5	pin 13
		pin D5	pin 27
7	M28052	pin F5	pin 14
		pin G5	pin 29
8	M28053	pin K5	pin 15
		pin J5	pin 31

Table 209/28-41-00-993-812 Tank Units Right Outboard Main Fuel Tank

TANK UNIT	EQUIP NUMBER	DM28002AB (FQPU CONN)	DM28202P (SPAR CONN)
9	M28054	pin A6	pin 1
		pin B6	pin 3
10	M28055	pin A7	pin 2
		pin B7	pin 7
11	M28056	pin A8	pin 5
		pin B8	pin 6
12	M28057	pin E8	pin 9
		pin D8	pin 22
13	M28058	pin F8	pin 11
		pin G8	pin 12
14	M28059	pin K8	pin 13
		pin J8	pin 27
15	M28060	pin A9	pin 14
		pin B9	pin 29

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Table 209/28-41-00-993-812 Tank Units Right Outboard Main Fuel Tank (Continued)

TANK UNIT	EQUIP NUMBER	DM28002AB (FQPU CONN)	DM28202P (SPAR CONN)
16	M28061	pin E9	pin 15
		pin D9	pin 31
17	M28062	pin F9	pin 17
		pin G9	pin 33
18	M28063	pin K9	pin 18
		pin J9	pin 19
19	M28064	pin A10	pin 20
		pin B10	pin 36
20	M28065	pin E10	pin 21
		pin D10	pin 38

Table 210/28-41-00-993-813 Tank Units Right Outboard Main Fuel Tank

TANK UNIT	EQUIP NUMBER	DM28002AD (FQPU CONN)	DM28202P (SPAR CONN)
21	M28066	pin A8	pin 40
		pin B8	pin 41
22	M28067	pin C8	pin 35
		pin D8	pin 37
23	M28068	pin A9	pin 4
		pin B9	pin 8
24	M28069	pin C9	pin 16
		pin D9	pin 34
25	M28070	pin A10	pin 30
		pin B10	pin 32
26	M28071	pin C10	pin 26
		pin D10	pin 28
27	M28072	pin A11	pin 24
		pin B11	pin 25
28	M28073	pin C11	pin 10
		pin D11	pin 23

(k) Repair the wiring.

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- (l) Connect the applicable spar connector plug (SWPM 20-20-00 and SWPM 20-60-06).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

- 1) Make sure the bonding jumper is installed on the receptacle and that the bonding jumper terminal on the receptacle is sealed.
- 2) Make sure the wiring harness is shielded and that the shield ground is terminated (SWPM 20-20-00 and SWPM 20-10-15).

28-AWL-04: CDCCL

- 3) Do this task: FQIS Wiring And Bonding - Inspection/Check, AMM TASK 05-55-54-200-801, to measure the resistance between the receptacle for the applicable wiring harness and the spar (primary structure).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

28-AWL-04: CDCCL

- a) Make sure the resistance is 0.003 ohm (3.0 milliohms) or less.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

- (m) Install the FQPU, M28002 (AMM TASK 28-41-01-400-801).
- (n) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
- (o) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (p) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the FQPU, M28002.

These are the tasks:

Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,

Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

- (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the applicable in-tank wiring harness.

These are the tasks:

FQIS In-Tank Wiring Harness - Removal, AMM TASK 28-41-05-000-801,

FQIS In-Tank Wiring Harness - Installation, AMM TASK 28-41-05-400-801.

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- (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

END OF TASK

805. Tank Unit Circuit (Open/Short) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 28-20009, 28-20011, 28-20013, 28-20015, 28-20017, 28-20019, 28-20024, 28-20026, 28-20028, 28-20030, 28-20032, 28-20034, 28-20039, 28-20041, 28-20058, 28-20060, 28-20062, 28-20064, 28-20066, 28-20068, 28-20070, 28-20072, 28-20074, 28-20076, 28-20078, 28-20080, 28-20082, 28-20084, 28-20086, 28-20088, 28-20090, 28-20092, 28-20094, 28-20096, 28-20106, 28-20108, 28-20110, 28-20112, 28-20114, 28-20116, 28-20118, 28-20120, 28-20122, 28-20124, 28-20126, 28-20128, 28-20130, 28-20132, 28-20134, 28-20136, 28-20138, 28-20140, 28-20142, 28-20144, 28-20161, 28-20163, 28-20165, 28-20167, 28-20169, 28-20171, 28-20173, 28-20175, 28-20177, 28-20179, 28-20181, 28-20183, 28-20185, 28-20187, 28-20189, 28-20191, 28-20193, 28-20195, 28-20197, 28-20199, 28-20201, 28-20203.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.
 - (a) If the fault history for a tank unit shows 4 or more occurrences in the past 7 days, do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Replace the applicable tank unit.

NOTE: If the L and R main tank units #28 are faulty and not replaced, it can cause overfilling and an inability to refuel.

These are the tasks:

Tank Unit - Removal, AMM TASK 28-41-02-000-801,

Tank Unit - Installation, AMM TASK 28-41-02-400-801.

- (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the FQPU, M28002.

These are the tasks:

Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,

Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

- (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

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- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the wiring:
- (a) Remove the fuel quantity processor unit (FQPU) M28002, installed in the E5-3 shelf at the forward cargo door (AMM TASK 28-41-01-000-801).
- (b) Disconnect the applicable spar connector plug.



WARNING

DO NOT USE ELECTRICAL TEST EQUIPMENT ON THE IN-TANK WIRING HARNESS THAT IS NOT APPROVED FOR FUEL TANKS SWPM 20-20-00. IF YOU USE ELECTRICAL TEST EQUIPMENT THAT IS NOT APPROVED, DAMAGE TO EQUIPMENT AND INJURIES TO PERSONS CAN OCCUR.

- (c) Do a check between these pins on the airplane harness for applicable spar connector plug DM28101P and the connector DM28002A for the FQPU.
- Refer to WDM 28-41-41 for Table 211.
 - Refer to WDM 28-41-41 for Table 212.
 - Refer to WDM 28-41-21 for Table 213.
 - Refer to WDM 28-41-22 for Table 214.
 - Refer to WDM 28-41-22 for Table 215 (Airplanes with raked wing tip).
 - Refer to WDM 28-41-42 for Table 216.
 - Refer to WDM 28-41-42 for Table 217.
 - Refer to WDM 28-41-31 for Table 218.
 - Refer to WDM 28-41-32 for Table 219.
 - Refer to WDM 28-41-32 for Table 220 (Airplanes with raked wing tip).

NOTE: It is OK to use a standard electrical tester on the airplane harness.

Table 211/28-41-00-993-814 Tank Units - Left Center Cheek Tank

TANK UNIT	EQUIP NUMBER	DM28002AA (FQPU CONN)		DM28101P (SPAR CONN)
1	M28147	pin A10 pin A9	----- -----	pin 1 pin 3
2	M28148	pin B10 pin B9	----- -----	pin 17 pin 33
3	M28149	pin C10 pin C9	----- -----	pin 5 pin 6
4	M28150	pin D10 pin D9	----- -----	pin 9 pin 22
5	M28151	pin E10 pin E9	----- -----	pin 11 pin 12
6	M28152	pin F10 pin F9	----- -----	pin 13 pin 27

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Table 212/28-41-00-993-815 Tank Units - Left Side Wing Center Section

TANK UNIT	EQUIP NUMBER	DM28002AA (FQPU CONN)	DM28101P (SPAR CONN)
7	M28153	pin G10 pin Go	pin 15 pin 31
8	M28154	pin H10 pin H9	pin 14 pin 29
9	M28155	pin A11 pin B11	pin 28 pin 4
10	M28156	pin E12 pin F12	pin 30 pin 32

Table 213/28-41-00-993-816 Tank Units Left Inboard Main Fuel Tank

TANK UNIT	EQUIP NUMBER	DM28002AA (FQPU CONN)	DM28103P (SPAR CONN)
1	M28074	pin A1 pin B1	pin 1 pin 3
2	M28075	pin E1 pin D1	pin 17 pin 33
3	M28076	pin F1 pin G1	pin 5 pin 6
4	M28077	pin K1 pin J1	pin 9 pin 22
5	M28078	pin A2 pin B2	pin 11 pin 12
6	M28079	pin E2 pin D2	pin 13 pin 27
7	M28080	pin F2 pin G2	pin 14 pin 29
8	M28081	pin K2 pin J2	pin 15 pin 31

Table 214/28-41-00-993-817 Tank Units Left Outboard Main Fuel Tank

TANK UNIT	EQUIP NUMBER	DM28002AA (FQPU CONN)	DM28102P (SPAR CONN)
9	M28082	pin A3 pin B3	pin 1 pin 3
10	M28083	pin A4 pin B4	pin 2 pin 7
11	M28084	pin A5 pin B5	pin 5 pin 6
12	M28085	pin E5 pin D5	pin 9 pin 22

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Table 214/28-41-00-993-817 Tank Units Left Outboard Main Fuel Tank (Continued)

13	M28086	pin F5 pin G5	----- -----	pin 11 pin 12
14	M28087	pin K5 pin J5	----- -----	pin 13 pin 27
15	M28088	pin A6 pin B6	----- -----	pin 14 pin 29
16	M28089	pin E6 pin D6	----- -----	pin 15 pin 31
17	M28090	pin F6 pin G6	----- -----	pin 17 pin 33
18	M28091	pin K6 pin J6	----- -----	pin 18 pin 19
19	M28092	pin A7 pin B7	----- -----	pin 20 pin 36
20	M28093	pin E7 pin D7	----- -----	pin 21 pin 38

Table 215/28-41-00-993-801 Tank Units Left Outboard Main Fuel Tank

TANK UNIT	EQUIP NUMBER	DM28002AD (FQPU CONN)	DM28202P (SPAR CONN)
21	M28110	pin A1 pin B1	pin 40 pin 41
22	M28111	pin C1 pin D1	pin 35 pin 37
23	M28112	pin A2 pin B2	pin 4 pin 8
24	M28113	pin C2 pin D2	pin 16 pin 34
25	M28114	pin A3 pin B3	pin 30 pin 32
26	M28115	pin C3 pin D3	pin 26 pin 28
27	M28116	pin A4 pin B4	pin 24 pin 25
28	M28117	pin C4 pin D4	pin 10 pin 23

Table 216/28-41-00-993-818 Tank Units - Right Center Cheek Tank

TANK UNIT	EQUIP NUMBER	DM28002AB (FQPU CONN)	DM28201P (SPAR CONN)
1	M28247	pin A1 pin A2	pin 1 pin 3

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Table 216/28-41-00-993-818 Tank Units - Right Center Cheek Tank (Continued)

2	M28248	pin B1	-----	pin 2
		pin B2	-----	pin 7
3	M28249	pin C1	-----	pin 5
		pin C2	-----	pin 6
4	M28250	pin D1	-----	pin 9
		pin D2	-----	pin 22
5	M28251	pin E1	-----	pin 11
		pin E2	-----	pin 12
6	M28252	pin F1	-----	pin 13
		pin F2	-----	pin 14

Table 217/28-41-00-993-819 Tank Units - Right Side Wing Center Section

TANK UNIT	EQUIP NUMBER	DM28002AB (FQPU CONN)	DM28201P (SPAR CONN)
7	M28253	pin G1	pin 19
		pin G2	pin 20
8	M28254	pin E15	pin 16
		pin F15	pin 17
9	M28255	pin E14	pin 30
		pin F14	pin 31
10	M28256	pin E13	pin 10
		pin F13	pin 23

Table 218/28-41-00-993-820 Tank Units Right Inboard Main Fuel Tank

TANK UNIT	EQUIP NUMBER	DM28002AB (FQPU CONN)	DM28203P (SPAR CONN)
1	M28046	pin A4	pin 1
		pin B4	pin 3
2	M28047	pin E4	pin 17
		pin D4	pin 33
3	M28048	pin F4	pin 5
		pin G4	pin 6
4	M28049	pin K4	pin 9
		pin J4	pin 22
5	M28050	pin A5	pin 11
		pin B5	pin 12
6	M28051	pin E5	pin 13
		pin D5	pin 27
7	M28052	pin F5	pin 14
		pin G5	pin 29
8	M28053	pin K5	pin 15
		pin J5	pin 31

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Table 219/28-41-00-993-821 Tank Units Right Outboard Main Fuel Tank

TANK UNIT	EQUIP NUMBER	DM28002AB (FQPU CONN)	DM28202P (SPAR CONN)
9	M28054	pin A6 pin B6	pin 1 pin 3
10	M28055	pin A7 pin B7	pin 2 pin 7
11	M28056	pin A8 pin B8	pin 5 pin 6
12	M28057	pin E8 pin D8	pin 9 pin 22
13	M28058	pin F8 pin G8	pin 11 pin 12
14	M28059	pin K8 pin J8	pin 13 pin 27
15	M28060	pin A8 pin B8	pin 14 pin 29
16	M28061	pin E9 pin D9	pin 15 pin 31
17	M28062	pin F9 pin Go	pin 17 pin 33
18	M28063	pin K9 pin J9	pin 18 pin 19
19	M28064	pin A10 pin B10	pin 20 pin 36
20	M28065	pin E10 pin D10	pin 21 pin 38

Table 220/28-41-00-993-822 Tank Units Right Outboard Main Fuel Tank

TANK UNIT	EQUIP NUMBER	DM28002AD (FQPU CONN)	DM28202P (SPAR CONN)
21	M28066	pin A8 pin B8	pin 40 pin 41
22	M28067	pin C8 pin D8	pin 35 pin 37
23	M28068	pin A9 pin B9	pin 4 pin 8
24	M28069	pin C9 pin D9	pin 16 pin 34
25	M28070	pin A10 pin B10	pin 30 pin 32
26	M28071	pin C10 pin D10	pin 26 pin 28

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Table 220/28-41-00-993-822 Tank Units Right Outboard Main Fuel Tank (Continued)

27	M28072	pin A11	-----	pin 24
		pin B11	-----	pin 25
28	M28073	pin C11	-----	pin 10
		pin D11	-----	pin 23

- (d) Repair the wiring.

 28-AWL-04: CDCCL

- (e) Connect the applicable spar connector plug (SWPM 20-20-00 and SWPM 20-60-06).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

- 1) Make sure the bonding jumper is installed on the receptacle and that the bonding jumper terminal on the receptacle is sealed.
- 2) Make sure the wiring harness is shielded and that the shield ground is terminated (SWPM 20-20-00 and SWPM 20-10-15).

 28-AWL-04: CDCCL

- 3) Do this task: FQIS Wiring And Bonding - Inspection/Check, AMM TASK 05-55-54-200-801, to measure the resistance between the receptacle for the applicable wiring harness and the spar (primary structure).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

 28-AWL-04: CDCCL

- a) Make sure the resistance is 0.003 ohm (3.0 milliohms) or less.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

- (f) Install the FQPU, M28002 (AMM TASK 28-41-01-400-801).
 - (g) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
 - (h) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
 - (i) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Replace the applicable in-tank wiring harness.

These are the tasks:

FQIS In-Tank Wiring Harness - Removal, AMM TASK 28-41-05-000-801,

FQIS In-Tank Wiring Harness - Installation, AMM TASK 28-41-05-400-801.

- (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.

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

————— END OF TASK —————

806. Water Detector Signal (Out of Range) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 28-20023, 28-20038, 28-20099, 28-20147.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the applicable water detector.

These are the tasks:

Water Detector - Removal, AMM TASK 28-41-04-000-801,

Water Detector - Installation, AMM TASK 28-41-04-400-801.

- (a) LEFT MAIN FUEL TANK - M28017
- (b) RIGHT MAIN FUEL TANK - M28016
- (c) RIGHT SIDE OF WING CENTER SECTION - M28019
- (d) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (e) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the fuel quantity processor unit (FQPU), M28002.

These are the tasks:

Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,

Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

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

————— END OF TASK —————

807. Water Detector Circuit (Open/Short) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 28-20022, 28-20037, 28-20098, 28-20146.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:

- (a) Remove the FQPU (AMM TASK 28-41-01-000-801).
- (b) Disconnect the spar connector plug for the applicable wiring harness.

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WARNING

DO NOT USE ELECTRICAL TEST EQUIPMENT ON THE IN-TANK WIRING HARNESS THAT IS NOT APPROVED FOR FUEL TANKS SWPM 20-20-00. IF YOU USE ELECTRICAL TEST EQUIPMENT THAT IS NOT APPROVED, DAMAGE TO EQUIPMENT AND INJURIES TO PERSONS CAN OCCUR.

- (c) Do a check of the airplane wiring harness between these pins on the spar connector plug D28101P and the connector DM28002A for the FQPU.

Refer to WDM 28-41-21 for Table 221.

Refer to WDM 28-41-42 for Table 222.

Refer to WDM 28-41-31 for Table 223.

NOTE: It is OK to use a standard electrical tester on the airplane harness.

Table 221/28-41-00-993-824 Water Detector Left Inboard Fuel Tank

WATER DETECTOR	DM28002AAA (FQPU CONN)		D281013P (SPAR CONN)
M28017	pin E3	-----	pin 24
	pin D3	-----	pin 25

Table 222/28-41-00-993-825 Water Detector Right Center Fuel Tank

WATER DETECTOR	DM28002AB (FQPU CONN)		D28201P (SPAR CONN)
M28019	pin H1	-----	pin 27
	pin H2	-----	pin 29

Table 223/28-41-00-993-826 Water Detector Right Main Fuel Tank

WATER DETECTOR	DM28002AB (FQPU CONN)		D28203P (SPAR CONN)
M28016	pin E6	-----	pin 24
	pin D6	-----	pin 25

- (d) Repair the wiring.
(e) Install the FQPU, M28002 (AMM TASK 28-41-01-400-801).

28-AWL-04: CDCCL

- (f) Connect the applicable spar connector plug (SWPM 20-20-00 and SWPM 20-60-06).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

- 1) Make sure the bonding jumper is installed on the receptacle and that the bonding jumper terminal on the receptacle is sealed.
- 2) Make sure the wiring harness is shielded and that the shield ground is terminated (SWPM 20-20-00 and SWPM 20-10-15).

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28-AWL-04: CDCCL

- 3) Do this task: FQIS Wiring And Bonding - Inspection/Check, AMM TASK 05-55-54-200-801, to measure the resistance between the receptacle for the applicable wiring harness and the spar (primary structure).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

28-AWL-04: CDCCL

- a) Make sure the resistance is 0.003 ohm (3.0 milliohms) or less.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

- (g) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (h) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the Fuel Quantity Processing Unit (FQPU), M28002.
- These are the tasks:
- Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,
Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the applicable water detector.
- These are the tasks:
- Water Detector - Removal, AMM TASK 28-41-04-000-801,
Water Detector - Installation, AMM TASK 28-41-04-400-801.
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Replace the applicable in-tank wiring harness.
- These are the tasks:
- FQIS In-Tank Wiring Harness - Removal, AMM TASK 28-41-05-000-801,
FQIS In-Tank Wiring Harness - Installation, AMM TASK 28-41-05-400-801.
- (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— **END OF TASK** —————

808. Densitometer Signal (Out of Range) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 28-20007, 28-20055, 28-20103.

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B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the applicable densitometer (Table 224).

These are the tasks:

Densitometer - Removal, AMM TASK 28-41-03-000-801,

Densitometer - Installation, AMM TASK 28-41-03-400-801.

Table 224/28-41-00-993-802 Densitometer Equipment Numbers

DENSITOMETER	LEFT MAIN FUEL TANK	RIGHT MAIN FUEL TANK	LEFT CENTER FUEL TANK
DENSITOMETER	M28011	M28012	M28015

- (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the fuel quantity processor unit (FQPU), M28002.
These are the tasks:
Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,
Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.
 - (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (3) Replace the applicable in-tank wiring harness.
These are the tasks:
FQIS In-Tank Wiring Harness - Removal, AMM TASK 28-41-05-000-801,
FQIS In-Tank Wiring Harness - Installation, AMM TASK 28-41-05-400-801.
 - (a) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— **END OF TASK** —————

809. Densitometer Circuit (Open/Short) Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 28-20008, 28-20054, 28-20102.

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B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do this check of the wiring:
 - (a) Remove the fuel quantity processor unit (FQPU) (AMM TASK 28-41-01-000-801).
 - (b) Disconnect the applicable spar connector plug.



WARNING

DO NOT USE ELECTRICAL TEST EQUIPMENT ON THE IN-TANK WIRING HARNESS THAT IS NOT APPROVED FOR FUEL TANKS SWPM 20-20-00. IF YOU USE ELECTRICAL TEST EQUIPMENT THAT IS NOT APPROVED, DAMAGE TO EQUIPMENT AND INJURIES TO PERSONS CAN OCCUR.

- (c) Do a check of the airplane wiring harness pins on the applicable spar connector plug and the connector DM28002A for the FQPU.

NOTE: It is OK to use a standard electrical tester on the airplane harness.

**Densitometer Left Center Fuel Tank (WDM
28-41-41)**

M28015	DM28002AA (FQPU CONN)	D28101P (SPAR CONN)
	pin J11	pin 8
	pin J10	pin 2
	pin J9	pin 7
	pin K11	pin 35
	pin K10	pin 18
	pin K9	pin 19
	pin D11	pin 20
	pin G11	pin 38
	pin E11	pin 21
	pin F11	pin 40
	pin H11	pin 39

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Denistometer Left Inboard Main Fuel Tank (WDM 28-41-31)

M28011	DM28002AA	D28103P (SPAR
	(FQPU CONN)	CONN)
	pin H4	pin 8
	pin F3	pin 2
	pin G3	pin 7
	pin H3	pin 35
	pin K3	pin 18
	pin J3	pin 19
	pin D4	pin 20
	pin J4	pin 38
	pin E4	pin 21
	pin F4	pin 40
	pin G4	pin 39

DensitometerRight Inboard Main Fuel Tank (WDM 28-41-31)

M28012	DM28002AB	D28203P (SPAR
	(FQPU CONN)	CONN)
	pin H6	pin 8
	pin F6	pin 2
	pin G6	pin 7
	pin H7	pin 35
	pin K6	pin 18
	pin J6	pin 19
	pin D7	pin 20
	pin J7	pin 38
	pin E7	pin 21
	pin F7	pin 40
	pin G7	39

- (d) Repair the wiring.
- (e) Install the FQPU, M28002 (AMM TASK 28-41-01-400-801).

28-AWL-04: CDCCL

- (f) Connect the applicable spar connector plug (SWPM 20-20-00 and SWPM 20-60-06).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

- 1) Make sure the bonding jumper is installed on the receptacle and that the bonding jumper terminal on the receptacle is sealed.
- 2) Make sure the wiring harness is shielded and that the shield ground is terminated (SWPM 20-20-00 and SWPM 20-10-15).

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28-AWL-04: CDCCL

- 3) Do this task: FQIS Wiring And Bonding - Inspection/Check, AMM TASK 05-55-54-200-801, to measure the resistance between the receptacle for the applicable wiring harness and the spar (primary structure).

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

28-AWL-04: CDCCL

- a) Make sure the resistance is 0.003 ohm (3.0 milliohms) or less.

NOTE: CDCCL - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 28-00-00-910-801, for important information on Critical Design Configuration Control Limitations (CDCCLs).

NOTE: This is applicable to Airworthiness Limitation 28-AWL-04.

- (g) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or the message does not show), you corrected the fault.
- (i) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the Fuel Quantity Processing Unit (FQPU), M28002.

These are the tasks:

Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,

Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

- (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the applicable densitometer.

These are the tasks:

Densitometer - Removal, AMM TASK 28-41-03-000-801,

Densitometer - Installation, AMM TASK 28-41-03-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Replace the applicable in-tank wiring harness.

These are the tasks:

FQIS In-Tank Wiring Harness - Removal, AMM TASK 28-41-05-000-801,

FQIS In-Tank Wiring Harness - Installation, AMM TASK 28-41-05-400-801.

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- (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, you corrected the fault.

————— END OF TASK —————

812. Fuel Quantity Processor Unit (FQPU) Incorrect Software - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20049.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Use a Maintenance Access Terminal (MAT) to do a software configuration check of the Fuel Quantity Processor Unit (FQPU). For instructions on how to use a MAT, do this task: How to Use the Central Maintenance Computing System, AMM TASK 45-10-00-740-808.

NOTE: Make sure that you know the correct software part number for the FQPU when you look at the software part number on the display. For the FQPU to be an approved installation, the correct software part number must be installed.

- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) SYSTEM CONFIGURATION
 - 4) 28 Fuel Quantity Indicating System
 - 5) CONTINUE

- (b) Find FQPU on the display and make sure that the software part number is correct.

NOTE: The configuration check will show a failure if the FQPU software is not installed.

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

————— END OF TASK —————

813. Fuel Quantity Processor Unit (FQPU) to Integrated Refuel Panel (IRP) 429 Bus Communications Problems - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 28-20051, 28-20052.

B. Possible Cause

- (1) Defective solder joints have been reported on some integrated refueling panel (IRP) printed circuit boards. The solder joint cracks that can cause blanking of the IRP.

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C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

D. Fault Isolation Procedure

NOTE: If you use a megohmmeter to do wiring checks on an ARINC 429 bus (or if you need the exact resistance of the bus wiring), first remove all the LRUs that are connected to the bus (use the WDM to tell which LRUs are on the bus). Then re-install the LRUs when you are done.

- (1) Do this check of the wiring:
 - (a) Remove the FQPU to get access to the connector DM28002AC (AMM TASK 28-41-01-000-801).
 - (b) Remove the IRP to get access to the connector DP28100. To remove it, do this task: Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801.
 - (c) Do a wiring check between these pins of connector DM28002AC at the E5-3 shelf and connector DP28100 at the IRP P28 (WDM 28-41-11)

DM28002AC	DP28100
pin K1	pin 10
pin K2	pin 11
pin H1	pin 16
pin H2	pin 17
pin A1	pin 13
pin A2	pin 14
pin C1	pin 19
pin C2	pin 20

- (d) Repair the wiring.
- (e) Install the FQPU M28002. To install it, do this task: Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.
- (f) Install the IRP P28. To install it, do this task: Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.
- (g) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (h) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the IRP P28.

These are the tasks:

Integrated Refuel Panel - Removal, AMM TASK 28-21-07-000-801,
Integrated Refuel Panel - Installation, AMM TASK 28-21-07-400-801.

 - (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the FQPU M28002.

These are the tasks:

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Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,
Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

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

————— **END OF TASK** —————

814. Fuel Quantity Processor Unit (FQPU) A/B Pin Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20100.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do a check of the fuel quantity program selector M28008, on the E5 rack (WDM 28-41-11, SSM 28-41-11).
 - (a) Make sure the correct A/B program pins are set for the airplane configuration.
 - (b) If the A/B program pins are not set correctly for the airplane configuration, then reset the pin(s) on the fuel quantity program selector M28008.
 - (c) If the A/B program pins are set correctly for the airplane configuration or the maintenance message continues to show, replace the fuel quantity program selector M28008.
 - (d) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the fuel quantity processor unit M28002.

These are the tasks:

Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,
Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

 - (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the wiring:
 - (a) Remove the FQPU to get access to the connector DM28002AC. To remove it, do this task: Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801.
 - (b) Remove the fuel quantity program selector M28008 to get access to its connector (WDM 28-41-11).
 - (c) Do a wiring check between these pins of the program selector M28008 in the E5 rack and connector DM28002AC at the E5-3 rack for the FQPU (WDM 28-41-11):

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M28008	DM28002AC
pin 25	pin E1
pin 26	pin F1
pin 1	pin D1
pin 2	pin D2
pin 3	pin D3
pin 4	pin D4

- (d) Repair the wiring (WDM 28-41-11).
- (e) Install the FQPU M28002. To install it, do this task: Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.
- (f) Install the fuel quantity program selector M28008 (WDM 28-41-11).
- (g) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

815. Fuel Quantity Processor Unit (FQPU) LB/KG Pin Problem - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20101.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do a check of the fuel quantity program selector M28008, on the E5 shelf (WDM 28-41-11).
 - (a) Make sure the correct LB/KG program pins are set for the airplane configuration.
 - (b) If the LB/KG program pins are not set correctly for the airplane configuration, then reset the pin(s) on the fuel quantity program selector M28008.
 - (c) If the LB/KG program pins are set correctly for the airplane configuration or the maintenance message continues to show, replace the fuel quantity program selector M28008.
 - (d) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the fuel quantity processor unit M28002.

These are the tasks:

Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,

Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

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- (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the wiring:
- (a) Remove the FQPU to get access to the connector DM28002AC. To remove it, do this task: Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801.
 - (b) Remove the fuel quantity program selector M28008 to get access to its connector (WDM 28-41-11).
 - (c) Do a wiring check between these pins of the program selector M28008 in the E5 rack and connector DM28002AC at the E5-3 rack for the FQPU (WDM 28-41-11):

M28008	DM28002AC
pin 25	pin E1
pin 26	pin F1
pin 5	pin G1
pin 6	pin G2
pin 7	pin G3
pin 8	pin G4

- (d) Repair the wiring (WDM 28-41-11).
- (e) Install the FQPU M28002. To install it, do this task: Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.
- (f) Install the fuel quantity program selector M28008 (WDM 28-41-11).
- (g) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

816. Multiple Tank Unit Problems in left main tank - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20149.

B. Description

- (1) If two or more FQIS tank unit faults become active, the Central Maintenance Computer (CMC) can generate multiple (20 or more) FQIS maintenance messages. All of these messages can occur within a 1-4 minute period.
- (2) If this occurs, it is recommended that you first do troubleshooting on any FQIS tank unit faults that have shown for several flight legs as shown in Extended Maintenance - Present Leg Faults of the CMCF on the Maintenance Access Terminal (MAT) (AMM TASK 45-10-00-740-817).
- (3) AIRPLANES WITHOUT FQPU PART NUMBER 0330KPU02, 0330KPU03, 0335KPU02, 0335KPU03 OR 0320KPU01;

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The FQPU can cause a fuel tank to blank with one or more tank unit failures.

NOTE: This fault can occur when operating at higher temperatures.

NOTE: Multiple tank units can show faults with the same timestamp. The MAT can be used to find which tank unit shows a fault first. It is recommended to do troubleshooting for tank unit faults with one timestamp first.

NOTE: Intermittent fuel tank blanking can occur until all tank unit failures within a given cell are corrected. See Fuel Quantity Processor Unit Reversionary Mode - Fault Isolation, 28-41 TASK 852 for more information about how the FQIS cells are arranged in each fuel tank.

C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Look on the maintenance access terminal (MAT) for TANK UNIT OPEN/SHORT maintenance messages.

NOTE: For these messages to show there must be two or more tank unit maintenance messages in the same fuel tank.

- (2) Do the applicable fault isolation procedures for the applicable maintenance messages that show.

————— END OF TASK —————

821. Multiple Tank Unit Problems in center fuel tank - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20148.

B. Description

- (1) If two or more FQIS tank unit faults become active, the Central Maintenance Computer (CMC) can generate multiple (20 or more) FQIS maintenance messages. All of these messages can occur within a 1-4 minute period.
- (2) If this occurs, it is recommended that you first do troubleshooting on any FQIS tank unit faults that have shown for several flight legs as shown in Extended Maintenance - Present Leg Faults of the CMCF on the Maintenance Access Terminal (MAT) (AMM TASK 45-10-00-740-817).
- (3) AIRPLANES WITHOUT FQPU PART NUMBER 0330KPU02, 0330KPU03, 0335KPU02, 0335KPU03 OR 0320KPU01;

The FQPU can cause a fuel tank to blank with one or more tank unit failures.

NOTE: This fault can occur when operating at higher temperatures.

NOTE: Multiple tank units can show faults with the same timestamp. The MAT can be used to find which tank unit shows a fault first. It is recommended to do troubleshooting for tank unit faults with one timestamp first.

NOTE: Intermittent fuel tank blanking can occur until all tank unit failures within a given cell are corrected. See Fuel Quantity Processor Unit Reversionary Mode - Fault Isolation, 28-41 TASK 852 for more information about how the FQIS cells are arranged in each fuel tank.

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C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Look on the maintenance access terminal (MAT) for TANK UNIT OPEN/SHORT maintenance messages.

NOTE: For these messages to show there must be two or more tank unit maintenance messages in the same fuel tank.

- (2) Do the applicable fault isolation procedures for the applicable maintenance messages that show.

————— END OF TASK —————

822. Multiple Tank Unit Problems in right main tank - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20150.

B. Description

- (1) If two or more FQIS tank unit faults become active, the Central Maintenance Computer (CMC) can generate multiple (20 or more) FQIS maintenance messages. All of these messages can occur within a 1-4 minute period.
- (2) If this occurs, it is recommended that you first do troubleshooting on any FQIS tank unit faults that have shown for several flight legs as shown in Extended Maintenance - Present Leg Faults of the CMCF on the Maintenance Access Terminal (MAT) (AMM TASK 45-10-00-740-817).
- (3) AIRPLANES WITHOUT FQPU PART NUMBER 0330KPU02, 0330KPU03, 0335KPU02, 0335KPU03 OR 0320KPU01;

The FQPU can cause a fuel tank to blank with one or more tank unit failures.

NOTE: This fault can occur when operating at higher temperatures.

NOTE: Multiple tank units can show faults with the same timestamp. The MAT can be used to find which tank unit shows a fault first. It is recommended to do troubleshooting for tank unit faults with one timestamp first.

NOTE: Intermittent fuel tank blanking can occur until all tank unit failures within a given cell are corrected. See Fuel Quantity Processor Unit Reversionary Mode - Fault Isolation, 28-41 TASK 852 for more information about how the FQIS cells are arranged in each fuel tank.

C. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

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D. Fault Isolation Procedure

- (1) Look on the maintenance access terminal (MAT) for TANK UNIT OPEN/SHORT maintenance messages.

NOTE: For these messages to show there must be two or more tank unit maintenance messages in the same fuel tank.

- (2) Do the applicable fault isolation procedures for the applicable maintenance messages that show.

————— **END OF TASK** —————

823. Air Data Inertial Reference Unit (Problems) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-28010.

B. Fault Isolation Procedure

- (1) There is a problem with the air data inertial reference unit (ADIRU). Look for maintenance messages that are related to the ADIRU to correct the problem.
 - (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

824. Tank Unit Signal (Out of Range - Problems) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance messages: 28-20010, 28-20012, 28-20014, 28-20016, 28-20018, 28-20020, 28-20025, 28-20027, 28-20029, 28-20031, 28-20033, 28-20035, 28-20040, 28-20042, 28-20059, 28-20061, 28-20063, 28-20065, 28-20067, 28-20069, 28-20071, 28-20073, 28-20075, 28-20077, 28-20079, 28-20081, 28-20083, 28-20085, 28-20087, 28-20089, 28-20091, 28-20093, 28-20095, 28-20097, 28-20107, 28-20109, 28-20111, 28-20113, 28-20115, 28-20117, 28-20119, 28-20121, 28-20123, 28-20125, 28-20127, 28-20129, 28-20131, 28-20133, 28-20135, 28-20137, 28-20139, 28-20141, 28-20143, 28-20145, 28-20162, 28-20164, 28-20166, 28-20168, 28-20170, 28-20172, 28-20174, 28-20176, 28-20178, 28-20180, 28-20182, 28-20184, 28-20186, 28-20188, 28-20190, 28-20192, 28-20194, 28-20196, 28-20198, 28-20200, 28-20202, 28-20204.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.
 - (a) If the fault history for a tank unit shows 4 or more occurrences in the past 7 days, do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) If the fuel quantity display (FQD) on the Integrated Refuel Panel (IRP) for the applicable tank blanks (goes off), replace the FQPU.

These are the tasks:

Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,

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Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

- (a) If the fuel quantity display continues to blank, then continue.
- (2) Replace the applicable tank unit (Table 225).

NOTE: If the L and R main tank units #28 are faulty and not replaced, it can cause overfilling and an inability to refuel.

These are the tasks:

Tank Unit - Removal, AMM TASK 28-41-02-000-801,

Tank Unit - Installation, AMM TASK 28-41-02-400-801.

Table 225/28-41-00-993-803 Tank Unit Electrical Equipment Numbers

TANK UNIT	LEFT MAIN FUEL TANK	RIGHT MAIN FUEL TANK	LEFT CENTER FUEL TANK	RIGHT CENTER FUEL TANK
1	M28074	M28046	M28147	M28247
2	M28075	M28047	M28148	M28248
3	M28076	M28048	M28149	M28249
4	M28077	M28049	M28150	M28250
5	M28078	M28050	M28151	M28251
6	M28079	M28051	M28152	M28252
7	M28080	M28052	M28153	M28253
8	M28081	M28053	M28154	M28254
9	M28082	M28054	M28155	M28255
10	M28083	M28055	M28156	M28256
11	M28084	M28056		
12	M28085	M28057		
13	M28086	M28058		
14	M28087	M28059		
15	M28088	M28060		
16	M28089	M28061		
17	M28090	M28062		
18	M28091	M28063		
19	M28092	M28064		
20	M28093	M28065		
21	M28110	M28066		
22	M28111	M28067		
23	M28112	M28068		
24	M28113	M28069		
25	M28114	M28070		
26	M28115	M28071		

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Table 225/28-41-00-993-803 Tank Unit Electrical Equipment Numbers (Continued)

TANK UNIT	LEFT MAIN FUEL TANK	RIGHT MAIN FUEL TANK	LEFT CENTER FUEL TANK	RIGHT CENTER FUEL TANK
27	M28116	M28072		
28	M28117	M28073		

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

————— END OF TASK —————

825. FQIS and FMC Fuel Quantity Disagree(Figure 301)

A. Initial Evaluation

- (1) Do a check of the difference between the fuel quantity shown on the Fuel Quantity Indicating System (FQIS) and the fuel quantity shown by the Flight Management Computer (FMC).
 - (a) If the difference between these two quantities is below the tolerance area plotted in Figure 301, then the system is okay.
 - (b) If the difference between these two quantities is above the tolerance area plotted in Figure 301, then do the Fault Isolation procedure below.

B. Fault Isolation

- (1) Do these steps to do a check of the FQIS:
 - (a) Do this task: Fuel Quantity Indicating System (FQIS) TANK UNITS and DENSITOMETERS - Operational Check, AMM TASK 28-41-00-710-801.
 - (b) If fuel-related faults are shown, do the fault isolation procedure for the faults shown.
 - 1) If there is no disagreement between the FQIS and FMC on the subsequent flight, then you corrected the fault.
 - (c) If no fuel-related faults are shown, then continue.
- (2) Do these steps to do a check of the FMC:
 - (a) Do this task: Flight Management Computing System - System Test, AMM TASK 34-61-00-730-801.
 - (b) If there are problems with the FMC, correct the faults found.
 - 1) If there is no disagreement between the FQIS and FMC on the subsequent flight, then you corrected the fault.
 - (c) If there are no problems with the FMC, then continue.
- (3) Do an inspection for indications of fuel leakage:
 - (a) Do a visual inspection of the exterior of the airplane for signs of leakage (AMM TASK 28-11-00-790-801).
 - (b) Look for indication of fuel leakage at the engine drain and vent openings:
 - 1) Do this task: Engine Vents and Drains Examination, AMM TASK 71-71-00-700-801-H01.
 - (c) If there are indications of fuel leakage, repair the leakage.
 - 1) If there is no disagreement between the FQIS and FMC on the subsequent flight, then you corrected the fault.
 - (d) If there is no indication of fuel leakage, then continue.

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- (4) Replace the two fuel flow transmitters.

These are the tasks:

Fuel Flow Transmitter Removal, AMM TASK 73-31-01-000-801-H01,

Fuel Flow Transmitter Installation, AMM TASK 73-31-01-400-801-H01.

————— **END OF TASK** —————

826. Fuel Quantity Processor Unit (FQPU) has no input from ELMS P310 Electronics Unit on 629 Bus (Left) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-69405.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the fuel quantity processor unit (FQPU), M28002.

These are the tasks:

Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,

Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a check of the Computing and Communications Unit (CCU), M24510, in the SPMP P310.
- This is the task:
- Computing and Communication Unit - Exchange Check, AMM TASK 24-09-00-700-802-002.
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the ARINC 629 (L) coupler, B28041, in the Data Bus Panel P111.

These are the tasks:

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

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

NOTE: This coupler connects the FQPU to the Systems 629 Bus-L.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Replace the ARINC 629 (L) coupler, B24109, in the Data Bus Panel P111.

These are the tasks:

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

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

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- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do this check of the wiring (WDM 28-41-11):
 - (a) Remove the FQPU, M28002. To remove it, do this task: Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801.
 - (b) Disconnect the connector DB28041 from the coupler B28041, on the Data Bus Panel P111.
 - (c) Do a wiring check between these pins of connector DB28041 on the Data Bus Panel P111 and the FQPU connector DM28002AA, on the E5-3 Shelf:

DB28041		DM28002AA	
pin 1	.....	pin 1TR	
pin 2	.....	pin 1T	
pin 4	.....	pin 2TR	
pin 5	.....	pin 2T	

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect the connector DB28041.
 - 3) Re-install the FQPU, M28002. To install it, do this task: Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (6) Do this check of the wiring (WDM 24-09-26):
 - (a) Remove the CCU, M24510. To remove it, do this task: Computing and Communications Unit - Removal, AMM TASK 24-09-00-000-815-002.
 - (b) Disconnect the connector DB24109 from the coupler B24109.
 - (c) Do a wiring check between these pins of connector DB24109 and the CCU connector DM24510A, in the Standby Power Management Panel (SPMP) P310:

DB24109		DM24510A	
pin 1	.....	pin 3	
pin 2	.....	pin 2	
pin 4	.....	pin 6	
pin 5	.....	pin 5	

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
Re-connect the connector DB24109.
 - 2) Re-install the CCU, M24510. To install it, do this task: Computing and Communications Unit - Installation, AMM TASK 24-09-00-400-811-002.

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

————— END OF TASK —————

827. Fuel Quantity Processor Unit (FQPU) has no input from ELMS P310 Electronics Unit on 629 Bus (Right) - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-19606.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Replace the fuel quantity processor unit (FQPU), M28002.

These are the tasks:

Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,

Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do a check of the Computing and Communications Unit (CCU), M24510, in the SPMP P310.
- This is the task:
- Computing and Communication Unit - Exchange Check, AMM TASK 24-09-00-700-802-002.
- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Replace the ARINC 629 (R) coupler, B28042, in the Data Bus Panel P111.

These are the tasks:

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

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

NOTE: This coupler connects the FQPU to the Systems 629 Bus-R.

- (a) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (4) Replace the ARINC 629 (R) coupler, B24209, in the Data Bus Panel P211.

These are the tasks:

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

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

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

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- (b) If the MAT shows ACTIVE for the maintenance message, then continue.
- (5) Do this check of the wiring (WDM 28-41-11):
- (a) Remove the FQPU, M28002. To remove it, do this task: Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801.
 - (b) Disconnect the connector DB28042 from the coupler B28042, on the Data Bus Panel P211.
 - (c) Do a wiring check between these pins of connector DB28042 on the Data Bus Panel P211 and the FQPU connector DM28002AB, on the E5-3 Shelf:

DB28042	DM28002AB
pin 1	pin 1TR
pin 2	pin 1T
pin 4	pin 2TR
pin 5	pin 2T

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect the connector DB28042.
 - 3) Re-install the FQPU, M28002. To install it, do this task: Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (6) Do this check of the wiring (WDM 24-09-26):
- (a) Remove the CCU, M24510. To remove it, do this task: Computing and Communications Unit - Removal, AMM TASK 24-09-00-000-815-002.
 - (b) Disconnect the connector DB24209 from the coupler B24209.
 - (c) Do a wiring check between these pins of connector DB24209 and the CCU connector DM24510A, in the Standby Power Management Panel (SPMP) P310:

DB24209	DM24510A
pin 1	pin 127
pin 2	pin 126
pin 4	pin 124
pin 5	pin 123

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Replace the ARINC 629 wiring (SWPM 20-11-11).
 - 2) Re-connect the connector DB24209.
 - 3) Re-install the CCU, M24510. To install it, do this task: Computing and Communications Unit - Installation, AMM TASK 24-09-00-400-811-002.
- (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

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828. Fuel Quantity Processor Unit Tank Configuration Program PINS are Invalid - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20303.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, do the Fault Isolation Procedure below.
- (2) If the MAT shows NOT ACTIVE for the maintenance message, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Do a check of the fuel quantity program selector M28008, on the E5 shelf (WDM 28-41-11).
 - (a) Make sure the correct program pins are set for the airplane configuration.
 - (b) If the program pins are not set correctly for the airplane configuration, then reset the pin(s) on the fuel quantity program selector M28008.
 - (c) If the program pins are set correctly for the airplane configuration or the maintenance message continues to show, replace the fuel quantity program selector M28008.
 - (d) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
 - (e) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (f) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Replace the fuel quantity processor unit M28002.

These are the tasks:

Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,
Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

 - (a) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.
 - (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (3) Do this check of the wiring:
 - (a) Remove the FQPU to get access to the connector DM28002AC. To remove it, do this task: Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801.
 - (b) Remove the fuel quantity program selector M28008 to get access to its connector (WDM 28-41-11).
 - (c) Do a wiring check between these pins of the program selector M28008 in the E5 rack and connector DM28002AC at the E5-3 rack for the FQPU (WDM 28-41-11):

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M28008	DM28002AC
pin 25	pin E1
pin 26	pin F1
pin 5	pin G1
pin 6	pin G2
pin 7	pin G3
pin 8	pin G4

- (d) Repair the wiring (WDM 28-41-11).
- (e) Install the FQPU M28002. To install it, do this task: Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.
- (f) Install the fuel quantity program selector M28008 (WDM 28-41-11).
- (g) Make sure the fuel quantity for the applicable fuel tank shows on the upper EICAS display.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), then you corrected the fault.

————— **END OF TASK** —————

852. Fuel Quantity Processor Unit Reversionary Mode - Fault Isolation

A. Description

- (1) If there are x's on the maintenance page adjacent to all fuel height and VOS indications, for a given tank, and FQPU part number 0320KPU01 is installed, then the FQPU is operating in the reversionary mode for that tank.
- (2) The main tanks are separated into these cells:
 - (a) The collector cell is made of tank units 1 and 2.
 - (b) The inner cell is made of tank units 3 through 10.
 - (c) The outer cell is made of tank units 11 through 20.
 - (d) The extended cell is made of tank units 21 through 28.
- (3) The center tank is separated into these cells:
 - (a) The cheek cell left is made of tank units 1 left through 6 left.
 - (b) The cheek cell right is made of tank units 1 right through 6 right.
 - (c) The center section bay 1 cell is made of tank units 7 left and 7 right.
 - (d) The center section bay 2 cell is made of tank units 8 left and 8 right.
 - (e) The center section bay 3 cell is made of tank units 9 left and 9 right.
 - (f) The center section bay 4 cell is made of tank units 10 left and 10 right.

B. Possible Causes

- (1) For FQPU 0320KPU01:
 - (a) If the ADIRU data is not available and there is a tank unit fault, the FQPU will go into the reversionary mode.
 - (b) If any two tank units fault in any one cell in a tank, the FQPU will go into the reversionary mode.
 - (c) If any two tank units fault in a tank, the FQPU can go into the reversionary mode.

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- (d) If there is a loss of all data from a tank circuit in the FQPU, the FQPU will go into the reversionary mode.
 - (e) If the FQPU can not determine the quantity of fuel in a tank due to other faults in the FQIS system, the FQPU will go into the reversionary mode.
 - (f) If there are fatal errors in the FQPU data concentrator card, the FQPU will go into the reversionary mode.
- (2) For FQPU 0330KPU01, 0330KPU02, 0330KPU03, 0335KPU01, 0335KPU02 or 0335KPU03:
- (a) If there are fatal errors in the FQPU integrated data concentrator, the FQPU will go into the reversionary mode.
 - (b) If there are fatal errors in the FQPU integrated communications module, the FQPU will go into the reversionary mode.
 - (c) If any two tank units fault in any one cell in a tank, the FQPU will go into the reversionary mode.
 - (d) If the tank harness fails for a tank, the FQPU will go into the reversionary mode.
 - (e) If a tank unit faults and the FQPU can not determine the fuel plane, the FQPU will go into the reversionary mode.
- NOTE: While on the ground, a nominal default attitude is available to limit the inability to determine the fuel plane.
- (f) If the FQPU can not determine the fuel plane for more than 210 seconds, the FQPU will go into the reversionary mode.

C. Fault Isolation Procedure

- (1) No action is necessary.

NOTE: The FQPU will remain in the reversionary mode until the faults are corrected and power to the FQPU is cycled.

————— END OF TASK —————

ARO 001, 002, 004-999; ARO 003 PRE SB 777-31-0264 AND PRE SB 777-31-0218 OR PRE SB 777-31-0263 OR POST SB 777-31-0227 OR POST SB 777-31-0263 OR POST SB 777-31-0264 OR POST SB 777-31-0218

853. INSUFFICIENT FUEL - EICAS Message

A. Description

- (1) No maintenance action is necessary.

NOTE: The EICAS message is an in-flight indication that the calculated fuel burn to the destination is more than the total fuel without fuel reserves.

————— END OF TASK —————

854. FUEL FLOW ENG L or R - EICAS Messages

A. Description

- (1) No maintenance action is necessary.

NOTE: The EICAS messages are in-flight indications that the calculated fuel flow rate from the engine parameters does not match the expected fuel flow rate.

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————— END OF TASK —————

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855. Fuel Quantity Indication Display Blanking - Fault Isolation

A. Description

- (1) This task is for these observed conditions on the Integrated Refuel Panel (IRP) and FUEL SYNOPTIC Displays:
 - (a) Intermittent Fuel Quantity Display blanking
 - (b) Complete Fuel Quantity Display blanking
 - (c) Erratic readings that can occur when two or more faults related to Tank Units or the signal from the Tank Unit to the Fuel Quantity Processor Unit (FQPU) occur within a cell of the same tank at the same time.
- (2) The Main Tanks are separated into these cells:
 - (a) The Collector Cell is made of Tank Units 1 and 2.
 - (b) The Inner Cell is made of Tank Units 3 through 10.
 - (c) The Outer Cell is made of Tank Units 11 through 20.
 - (d) The Extended Cell is made of Tank Units 21 through 28.
- (3) The Center Tank is separated into these cells:
 - (a) The Left Cheek Cell is made of Tank Units 1L through 6L.
 - (b) The Right Cheek Cell is made of Tank Units 1R through 6R.
 - (c) The Center Section Bay 1 Cell is made of Tank Units 7L and 7R.
 - (d) The Center Section Bay 2 Cell is made of Tank Units 8L and 8R.
 - (e) The Center Section Bay 3 Cell is made of Tank Units 9L and 9R.
 - (f) The Center Section Bay 4 Cell is made of Tank Units 10L and 10R.
- (4) Tank Unit positions are illustrated in Figure 302 (Sheet 3).
- (5) If this occurs, first troubleshoot FQIS Tank Unit or harness faults that have shown for several flight legs as shown in EXTENDED MAINTENANCE - PRESENT LEG FAULTS of the CMCF on the Maintenance Access Terminal (MAT) (How to Find Maintenance Messages from the Present Leg that are not Correlated, AMM TASK 45-10-00-740-817).

B. Initial Evaluation

- (1) If intermittent or complete Fuel Quantity Display blanking, or erratic readings occur, do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Look at the MAT for FQIS Tank Unit or harness related maintenance messages in PRESENT LEG FAULTS and maintenance messages that have shown intermittently or consecutively for several flight legs.
 - (a) Correlate maintenance messages to the Left Main, Center or Right Main Tank and to the cell within the tank.
 - (b) Look for multiple Tank Unit faults, multiple harness faults or a combination of both within a given cell of a tank.
- (2) Refer to 28-MAINT MSG INDEX to find the applicable Fault Isolation Tasks for the maintenance messages within the cell that shows multiple Tank Unit faults, multiple harness faults or a combination of both.

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- (3) If Fuel Tank entry is required, it is recommended to replace all Tank Units in the tank that shows a fault for multiple consecutive flight legs.

———— **END OF TASK** ————

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1. Maintenance Tip - Troubleshooting the large fuel quantity discrepancy between the fuel quantity indication system (FQIS) and refueling truck uplift quantity after refueling.

A. Condition

A large fuel quantity discrepancy between the airplane FQIS fuel quantity display and the indicated refueling truck fuel upload after refueling.

B. Recommended Action

Reset the Velocity Of Sound (VOS) value to enable accurate fuel quantity calculations by accomplishing one of the following procedures:

Cycle the refueling panel door.

- If the refuel panel door is closed, then open the refuel panel door and wait for approximately 5 minutes for the fuel quantity display to reset.
- If the refuel panel door is open, then close the refuel panel door for approximately one (1) minute, and then open the refuel panel door and wait five (5) minutes for the fuel quantity display to reset.

Cycle the following Fuel Quantity Processor Unit (FQPU) circuit breakers. Wait for approximately five (5) minutes for the FQPU to go through a self-test and the fuel quantity display to reset.

Open and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	1	C28625	FUEL QTY 1

Open and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	10	C28624	FUEL QTY 2

Each of the above actions (only one action necessary) allows the FQIS to reset so accurate fuel quantity calculations can be accomplished.

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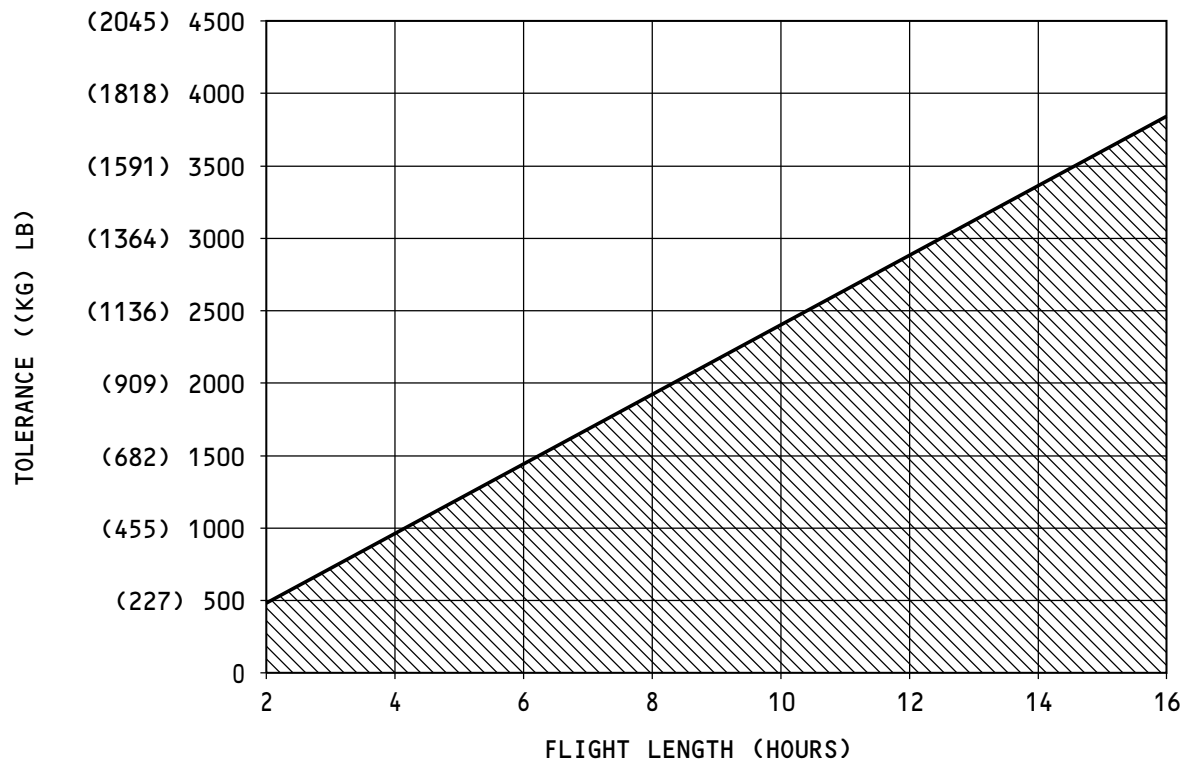
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FQIS AND FMC FUEL QUANTITY DISAGREE TOLERANCE

LEGEND:



AREA WITHIN
TOLERANCE

1733795 S0000313460_V1

FQIS and FMC Fuel Quantity Disagree Tolerance
Figure 301/28-41-00-990-801

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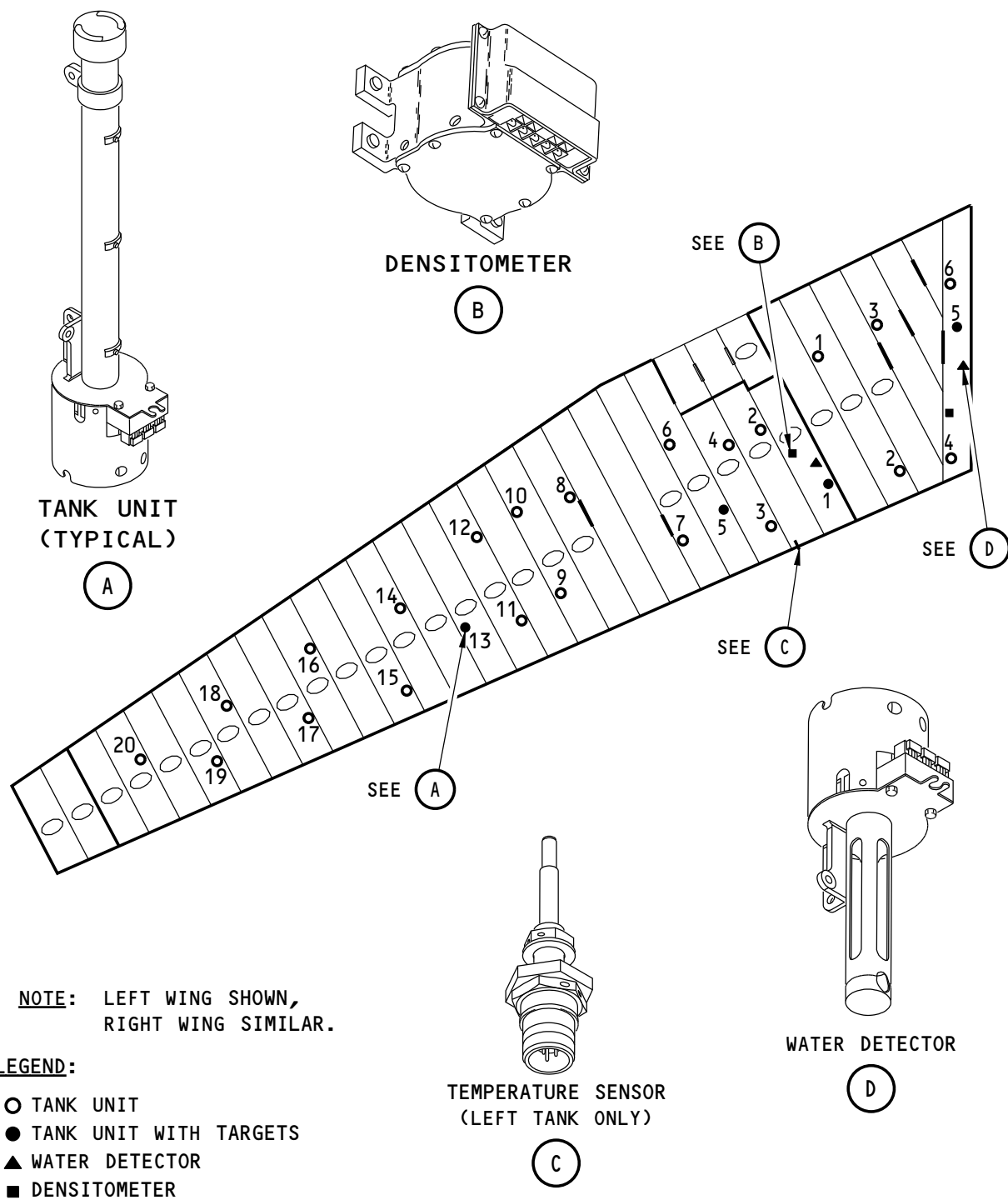
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2478176 S0000581424_V1

Fuel Indicating - FQIS - Component Location
Figure 302/28-41-00-990-802 (Sheet 1 of 3)

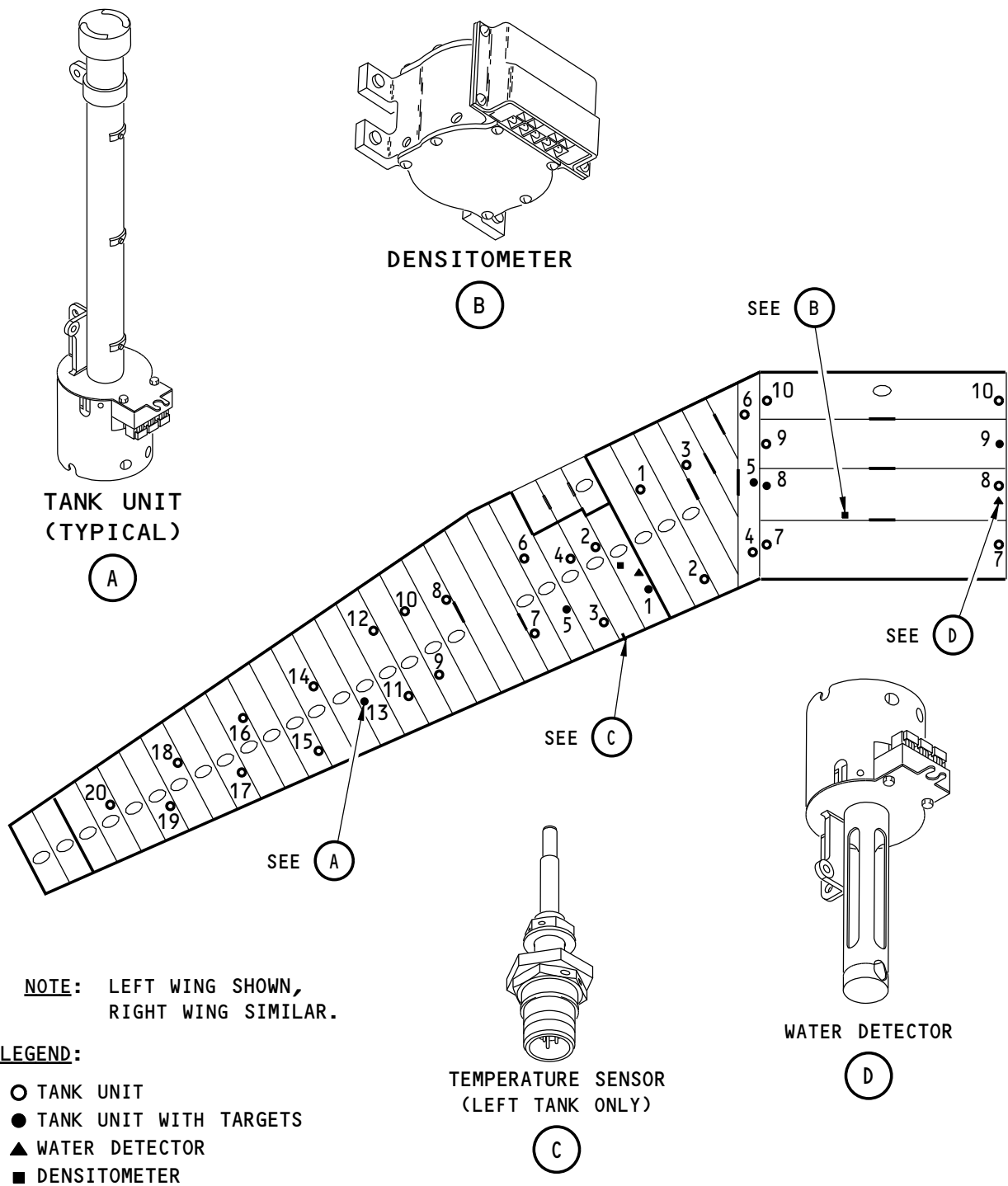
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2478179 S0000581453_V1

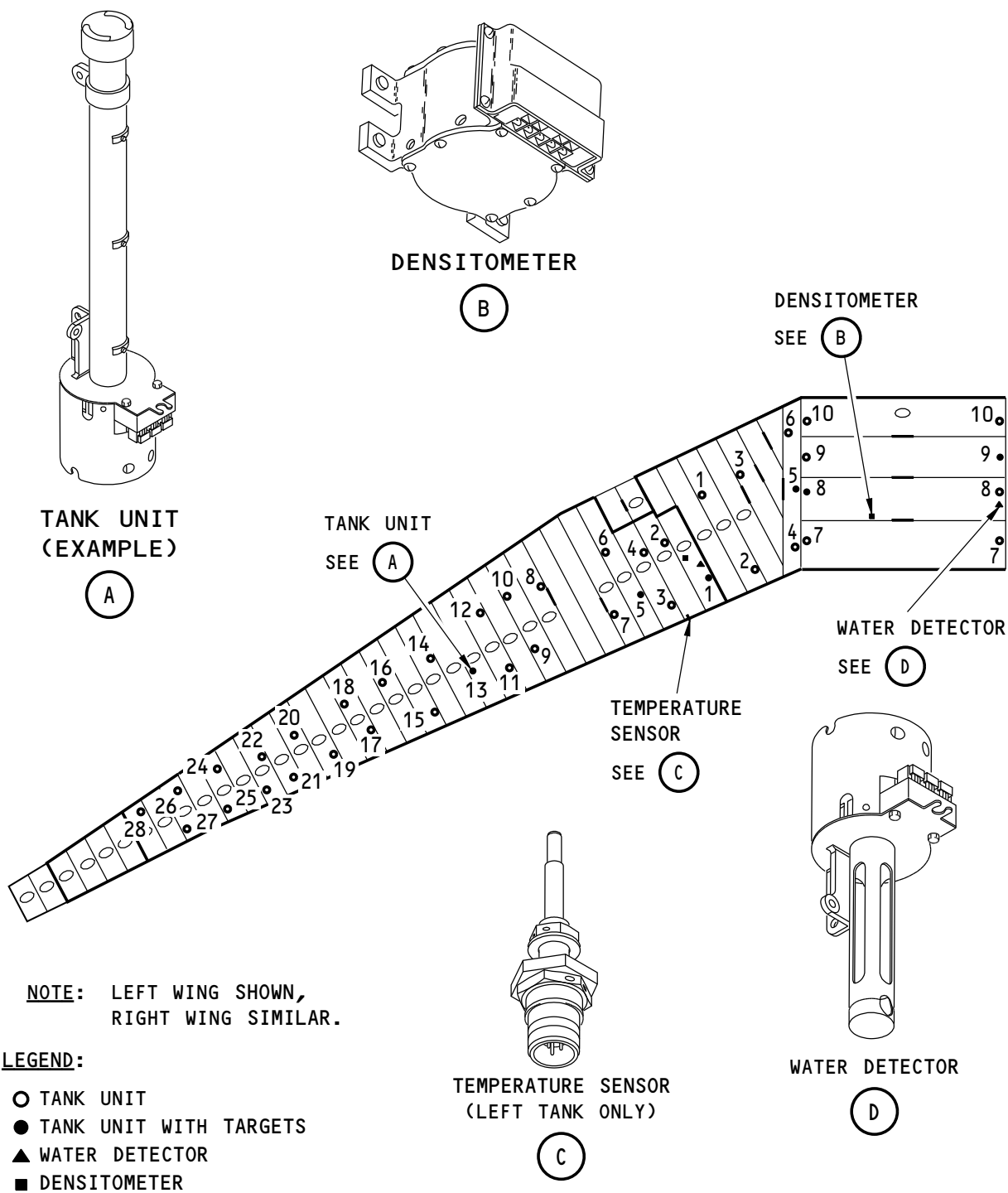
Fuel Indicating - FQIS - Component Location
Figure 302/28-41-00-990-802 (Sheet 2 of 3)

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Fuel Indicating - FQIS - Component Location
Figure 302/28-41-00-990-802 (Sheet 3 of 3)

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801. Fuel Temperature Sensor - Fault Isolation

A. Maintenance Messages

- (1) This task is for maintenance message: 28-20151.

B. Initial Evaluation

- (1) If the MAT shows ACTIVE for the maintenance message, 28-20151, do these steps:
 - (a) Let the fuel quantity processor unit (FQPU) temperature decrease (cool) for 10 minutes.
 - (b) If the MAT shows NOT ACTIVE for the maintenance message, 28-20151, then there was an intermittent fault.
 - (c) If the MAT continues to show ACTIVE for the maintenance message, 28-20151, then proceed to next step.
- (2) Replace the fuel quantity processor unit (FQPU), M28002.

These are the tasks:

Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801,

Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

- (a) Make sure the fuel temperature shows on the upper EICAS display.
- (b) If the MAT shows NOT ACTIVE for the maintenance message, 28-20151, (or if the message does not show), you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, 28-20151, then proceed to fault isolation procedure below.

C. Fault Isolation Procedure

- (1) Replace the fuel temperature sensor, M28025.

These are the tasks:

Fuel Temperature Sensor - Removal, AMM TASK 28-43-01-000-801,

Fuel Temperature Sensor - Installation, AMM TASK 28-43-01-400-801.

- (a) Make sure the fuel temperature shows on the upper EICAS display.
- (b) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.
- (c) If the MAT shows ACTIVE for the maintenance message, then continue.
- (2) Do these steps to check the wiring (WDM 28-43-11):
 - (a) Remove the FQPU. To remove it, do this task: Fuel Quantity Processor Unit (FQPU) - Removal, AMM TASK 28-41-01-000-801.
 - (b) Remove the electrical connector for the fuel temperature sensor.
 - (c) Do a wiring check of these pins, on connector DM28025, for the fuel temperature sensor and connector DM28002AA, for the FQPU:

DM28002AA

pin F7

pin J7

pin G7

DM28025

pin 1

pin 3

pin 2

- (d) Repair the wiring problems that you find.
- (e) Install the FQPU, M28002. To install it, do this task: Fuel Quantity Processor Unit (FQPU) - Installation, AMM TASK 28-41-01-400-801.

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- (f) Install the electrical connector for the fuel temperature sensor.
- (g) Make sure the fuel temperature shows on the upper EICAS display.
- (h) If the MAT shows NOT ACTIVE for the maintenance message (or if the message does not show), you corrected the fault.

———— **END OF TASK** ————

802. FUEL TEMP LOW - EICAS Message

A. Initial Evaluation

- (1) The EICAS advisory message FUEL TEMP LOW shows when the fuel temperature is less than -37 degrees C. This is 3 degrees more than freezing temperature for JET A fuel. If you use other fuel types, the freezing point is lower. However, you must continue to keep the fuel 3 degrees above the applicable fuel freeze point.
- (2) No maintenance action is necessary.

———— **END OF TASK** ————

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802. Observed Fault with Correlated Maintenance Messages - Fault Isolation

A. Initial Evaluation

- (1) Find the fault code to the right of the fault description in the Observed Faults List (at the front of the FIM).
 - (a) The first two digits of the fault code are the FIM chapter that you need. Go to the Fault Code Index in that chapter and find the fault code.
 - (b) Find the maintenance message to the right of the fault code.
 - (c) Find the task number on the same line as the maintenance message number.
 - (d) Go to the task in the FIM and do the steps in the task.

————— **END OF TASK** —————

803. EICAS Message Latched by AIMS - Fault Isolation

A. Initial Evaluation

NOTE: AIMS can latch this EICAS message when it occurs. After you find the cause of the fault and correct it, it is possible that the EICAS message will continue to show.

- (1) Do not erase the EICAS message until you complete the task for the correlated maintenance message.
- (2) When this EICAS message occurs, do these steps:
 - (a) Make sure that you have the correlated maintenance message number that shows on the MAT with the EICAS message.
 - (b) Go back to the FIM Fault Code Index and find the fault code for the EICAS message.
 - (c) Find the correlated maintenance message number and the task number to the right of the fault code.
 - (d) Go to the specified task in the FIM and do the steps in the task.
 - (e) After you do the actions in the task to correct the fault, do these steps:
 - 1) Look at the MAT for the EICAS message.
 - 2) If the MAT shows LATCHED for the EICAS message, then you must erase it from the EICAS status display. To erase it, do this task: Erasing a EICAS Status Message Latched by AIMS, AMM TASK 31-61-00-800-802.

————— **END OF TASK** —————

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