

CHAPTER

34

NAVIGATION



**737-600/700/800/900
FAULT ISOLATION MANUAL**

**CHAPTER 34
NAVIGATION**

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34-EFFECTIVE PAGES			34-16 TASKS			34-21 TASKS (cont)		
1 thru 6	Oct 15/2023		201	Oct 15/2021		230	Feb 15/2023	
34-HOW TO USE THE FIM			202	Oct 15/2021		231	Feb 15/2023	
1	Oct 15/2021		203	Oct 15/2021		232	Feb 15/2023	
2	Oct 15/2021		204	BLANK		233	Feb 15/2023	
3	Oct 15/2021		34-20 TASKS			234	Feb 15/2023	
4	Oct 15/2021		201	Feb 15/2022		235	Feb 15/2023	
5	Oct 15/2021		202	BLANK		236	Feb 15/2023	
6	Oct 15/2021		34-21 TASKS			237	Feb 15/2023	
34-FAULT CODE INDEX			R 201	Oct 15/2023		238	Feb 15/2023	
101	Oct 15/2021		R 202	Oct 15/2023		239	Feb 15/2023	
102	Oct 15/2021		O 203	Oct 15/2023		240	Feb 15/2023	
R 103	Oct 15/2023		204	Oct 15/2021		241	Feb 15/2023	
O 104	Oct 15/2023		205	Feb 15/2022		242	Feb 15/2023	
105	Feb 15/2022		206	Feb 15/2022		243	Feb 15/2023	
106	Feb 15/2022		R 207	Oct 15/2023		244	Feb 15/2023	
107	Feb 15/2022		208	Feb 15/2022		245	Jun 15/2023	
108	Feb 15/2022		209	Feb 15/2022		246	Feb 15/2023	
R 109	Oct 15/2023		210	Feb 15/2022		247	Feb 15/2023	
O 110	Oct 15/2023		211	Feb 15/2022		248	Feb 15/2023	
34-MAINT MSG INDEX			212	Feb 15/2022		249	Feb 15/2023	
101	Oct 15/2021		213	Feb 15/2022		250	Feb 15/2023	
102	Oct 15/2021		214	Feb 15/2022		251	Feb 15/2023	
103	Oct 15/2021		215	Feb 15/2022		252	Feb 15/2023	
104	Oct 15/2021		216	Feb 15/2022		253	Feb 15/2023	
105	Oct 15/2021		217	Feb 15/2022		254	Feb 15/2023	
106	Oct 15/2021		218	Feb 15/2022		255	Feb 15/2023	
107	Oct 15/2021		219	Feb 15/2022		256	Feb 15/2023	
108	Oct 15/2021		220	Feb 15/2022		257	Feb 15/2023	
109	Oct 15/2021		221	Feb 15/2022		258	Jun 15/2023	
110	Oct 15/2021		222	Feb 15/2022		259	Jun 15/2023	
111	Oct 15/2021		223	Jun 15/2023		260	Jun 15/2023	
112	Oct 15/2021		224	Feb 15/2022		261	Jun 15/2023	
113	Jun 15/2023		225	Feb 15/2022		262	Jun 15/2023	
114	Jun 15/2023		226	Feb 15/2022		263	Jun 15/2023	
115	Jun 15/2023		227	Feb 15/2022		264	Jun 15/2023	
116	Jun 15/2023		228	Feb 15/2023		265	Jun 15/2023	
			229	Feb 15/2023				

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34-21 TASKS (cont)			34-21 TASKS (cont)			34-24 TASKS (cont)		
266	Jun 15/2023		298.4	Feb 15/2023		218	BLANK	
267	Jun 15/2023		298.5	Feb 15/2023		34-31 TASKS		
268	Jun 15/2023		298.6	Feb 15/2023		201	Jun 15/2023	
269	Jun 15/2023		298.7	Feb 15/2023		202	Oct 15/2021	
270	Jun 15/2023		298.8	Feb 15/2023		203	Oct 15/2021	
271	Jun 15/2023		298.9	Feb 15/2023		204	Feb 15/2023	
272	Jun 15/2023		298.10	Feb 15/2023		205	Feb 15/2023	
273	Jun 15/2023		298.11	Feb 15/2023		206	Feb 15/2023	
274	Jun 15/2023		298.12	BLANK		207	Feb 15/2023	
275	Jun 15/2023		34-21 TASK SUPPORT			208	Feb 15/2023	
276	Jun 15/2023		301	Oct 15/2021		209	Oct 15/2022	
277	Jun 15/2023		302	Oct 15/2021		210	Feb 15/2023	
278	Jun 15/2023		303	Oct 15/2021		211	Feb 15/2023	
279	Jun 15/2023		304	BLANK		212	Feb 15/2023	
280	Jun 15/2023		34-23 TASKS			213	Feb 15/2023	
281	Jun 15/2023		R 201	Oct 15/2023		214	Feb 15/2023	
282	Jun 15/2023		202	Oct 15/2021		215	Feb 15/2023	
283	Jun 15/2023		203	Oct 15/2021		216	Feb 15/2022	
284	Jun 15/2023		204	BLANK		217	Feb 15/2023	
285	Jun 15/2023		34-24 TASKS			218	Feb 15/2023	
286	Jun 15/2023		201	Oct 15/2021		219	Oct 15/2021	
287	Jun 15/2023		202	Oct 15/2021		220	Feb 15/2023	
288	Jun 15/2023		203	Oct 15/2021		221	Feb 15/2023	
289	Jun 15/2023		204	Oct 15/2021		222	Feb 15/2022	
290	Jun 15/2023		205	Feb 15/2023		223	Feb 15/2022	
291	Jun 15/2023		206	Feb 15/2023		224	Feb 15/2022	
292	Jun 15/2023		207	Oct 15/2021		225	Feb 15/2022	
293	Jun 15/2023		208	Oct 15/2021		226	Feb 15/2022	
294	Jun 15/2023		209	Oct 15/2021		227	Feb 15/2022	
295	Feb 15/2023		210	Oct 15/2021		228	Feb 15/2022	
296	Feb 15/2023		211	Oct 15/2021		229	Feb 15/2022	
297	Feb 15/2023		212	Oct 15/2021		230	Feb 15/2022	
298	Feb 15/2023		213	Oct 15/2021		231	Feb 15/2022	
298.1	Jun 15/2023		214	Oct 15/2021		232	Feb 15/2023	
298.2	Feb 15/2023		215	Oct 15/2021		233	Feb 15/2022	
298.3	Feb 15/2023		216	Oct 15/2021		234	Feb 15/2023	
			217	Oct 15/2021				

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34-31 TASKS (cont)			34-43 TASKS (cont)			34-43 TASKS (cont)		
235	Feb 15/2022		O 213	Oct 15/2023		R 249	Oct 15/2023	
R 236	Oct 15/2023		R 214	Oct 15/2023		R 250	Oct 15/2023	
A 237	Oct 15/2023		O 215	Oct 15/2023		R 251	Oct 15/2023	
A 238	BLANK		R 216	Oct 15/2023		O 252	Oct 15/2023	
34-32 TASKS			217	Oct 15/2021		R 253	Oct 15/2023	
201	Feb 15/2022		218	Oct 15/2021		O 254	Oct 15/2023	
202	Feb 15/2022		R 219	Oct 15/2023		O 255	Oct 15/2023	
203	Feb 15/2022		R 220	Oct 15/2023		R 256	Oct 15/2023	
204	Feb 15/2022		R 221	Oct 15/2023		R 257	Oct 15/2023	
205	Feb 15/2022		222	Oct 15/2021		R 258	Oct 15/2023	
206	Feb 15/2022		R 223	Oct 15/2023		R 259	Oct 15/2023	
34-33 TASKS			224	Oct 15/2021		O 260	Oct 15/2023	
201	Feb 15/2023		225	Oct 15/2021		O 261	Oct 15/2023	
202	Oct 15/2021		226	Oct 15/2021		O 262	Oct 15/2023	
203	Oct 15/2021		227	Oct 15/2021		O 263	Oct 15/2023	
204	Oct 15/2021		228	Oct 15/2021		264	BLANK	
205	Oct 15/2021		229	Oct 15/2021		34-45 TASKS		
206	Feb 15/2023		230	Oct 15/2021		201	Oct 15/2021	
207	Jun 15/2023		231	Oct 15/2021		202	Oct 15/2021	
208	Jun 15/2023		232	Oct 15/2021		203	Oct 15/2021	
209	Jun 15/2023		233	Oct 15/2021		204	Oct 15/2021	
210	Jun 15/2023		234	Oct 15/2021		205	Oct 15/2021	
211	Jun 15/2022		235	Oct 15/2021		206	Feb 15/2022	
212	BLANK		236	Oct 15/2021		207	Feb 15/2022	
34-43 TASKS			237	Oct 15/2021		208	Feb 15/2022	
201	Oct 15/2021		238	Oct 15/2021		209	Feb 15/2022	
202	Oct 15/2021		239	Oct 15/2021		210	Feb 15/2022	
203	Oct 15/2021		240	Oct 15/2021		211	Feb 15/2022	
204	Oct 15/2021		241	Oct 15/2021		212	Feb 15/2022	
205	Oct 15/2021		242	Oct 15/2021		213	Feb 15/2022	
206	Oct 15/2021		243	Feb 15/2023		214	Feb 15/2022	
207	Oct 15/2021		R 244	Oct 15/2023		215	Feb 15/2022	
208	Oct 15/2021		O 245	Oct 15/2023		216	Feb 15/2022	
209	Oct 15/2021		O 246	Oct 15/2023		217	Feb 15/2022	
210	Oct 15/2021		O 247	Oct 15/2023		218	Feb 15/2022	
211	Jun 15/2023		O 248	Oct 15/2023		219	Oct 15/2021	
212	Jun 15/2023							

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34-45 TASKS (cont)			34-46 TASKS (cont)			34-46 TASKS (cont)		
220	Oct 15/2021		207	Jun 15/2023		O 243	Oct 15/2023	
221	Oct 15/2021		208	Jun 15/2023		O 244	Oct 15/2023	
222	Oct 15/2021		209	Jun 15/2023		O 245	Oct 15/2023	
223	Oct 15/2021		210	Jun 15/2023		O 246	Oct 15/2023	
224	Oct 15/2021		211	Jun 15/2023		O 247	Oct 15/2023	
225	Oct 15/2021		212	Jun 15/2023		O 248	Oct 15/2023	
226	Oct 15/2021		213	Jun 15/2023		R 249	Oct 15/2023	
227	Oct 15/2021		214	Jun 15/2023		O 250	Oct 15/2023	
228	Oct 15/2021		215	Jun 15/2023		R 251	Oct 15/2023	
229	Oct 15/2021		216	Jun 15/2023		R 252	Oct 15/2023	
230	Oct 15/2021		217	Jun 15/2023		O 253	Oct 15/2023	
R 231	Oct 15/2023		218	Jun 15/2023		O 254	Oct 15/2023	
232	Jun 15/2023		219	Jun 15/2023		O 255	Oct 15/2023	
233	Oct 15/2021		220	Jun 15/2023		O 256	Oct 15/2023	
234	Oct 15/2021		221	Jun 15/2023		O 257	Oct 15/2023	
235	Oct 15/2021		222	Jun 15/2023		O 258	Oct 15/2023	
236	Oct 15/2021		223	Jun 15/2023		O 259	Oct 15/2023	
237	Oct 15/2021		224	Jun 15/2023		O 260	Oct 15/2023	
238	Oct 15/2021		225	Jun 15/2023		O 261	Oct 15/2023	
239	Oct 15/2021		226	Jun 15/2023		O 262	Oct 15/2023	
240	Oct 15/2021		227	Jun 15/2023		O 263	Oct 15/2023	
241	Oct 15/2021		R 228	Oct 15/2023		O 264	Oct 15/2023	
242	Oct 15/2021		R 229	Oct 15/2023		O 265	Oct 15/2023	
243	Oct 15/2021		R 230	Oct 15/2023		O 266	Oct 15/2023	
244	Oct 15/2021		O 231	Oct 15/2023		O 267	Oct 15/2023	
245	Oct 15/2021		O 232	Oct 15/2023		R 268	Oct 15/2023	
246	Oct 15/2021		O 233	Oct 15/2023		O 269	Oct 15/2023	
247	Oct 15/2021		O 234	Oct 15/2023		O 270	Oct 15/2023	
248	Oct 15/2021		O 235	Oct 15/2023		O 271	Oct 15/2023	
34-46 TASKS			O 236	Oct 15/2023		O 272	Oct 15/2023	
201	Oct 15/2021		O 237	Oct 15/2023		O 273	Oct 15/2023	
202	Oct 15/2021		O 238	Oct 15/2023		O 274	Oct 15/2023	
203	Oct 15/2021		O 239	Oct 15/2023		O 275	Oct 15/2023	
204	Oct 15/2021		O 240	Oct 15/2023		O 276	Oct 15/2023	
205	Jun 15/2023		O 241	Oct 15/2023		O 277	Oct 15/2023	
206	Jun 15/2023		O 242	Oct 15/2023		O 278	Oct 15/2023	

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34-46 TASKS (cont)			34-53 TASKS (cont)			34-57 TASKS (cont)		
O 279	Oct 15/2023		205	Oct 15/2021		203	Oct 15/2021	
O 280	Oct 15/2023		206	Oct 15/2021		204	Oct 15/2021	
O 281	Oct 15/2023		207	Oct 15/2021		205	Oct 15/2021	
O 282	Oct 15/2023		208	Oct 15/2021		206	Oct 15/2021	
34-46 TASK SUPPORT			209	Oct 15/2021		207	Oct 15/2021	
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305	Oct 15/2021		214	Oct 15/2021		212	Oct 15/2021	
306	Oct 15/2021		215	Oct 15/2021		213	Oct 15/2021	
307	Oct 15/2021		216	Oct 15/2021		214	Oct 15/2021	
308	Oct 15/2021		217	Oct 15/2021		215	Oct 15/2021	
34-51 TASKS			218	Oct 15/2021		216	Oct 15/2021	
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203	Oct 15/2021		221	Oct 15/2021		219	Oct 15/2021	
204	Feb 15/2022		222	Oct 15/2021		220	Oct 15/2021	
205	Feb 15/2022		223	Oct 15/2021		221	Oct 15/2021	
206	Feb 15/2022		224	Oct 15/2021		222	Oct 15/2021	
207	Feb 15/2022		225	Oct 15/2021		223	Oct 15/2021	
208	Feb 15/2022		226	BLANK		224	Oct 15/2021	
209	Feb 15/2022		34-53 TASK SUPPORT			225	Oct 15/2021	
210	Feb 15/2022		301	Oct 15/2021		226	Oct 15/2021	
211	Feb 15/2022		302	BLANK		227	Oct 15/2021	
212	Feb 15/2022		34-55 TASKS			228	Oct 15/2021	
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214	Feb 15/2022		202	Oct 15/2021		230	Oct 15/2021	
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216	Feb 15/2022		204	Oct 15/2021		232	Oct 15/2021	
217	Feb 15/2022		205	Oct 15/2021		233	Oct 15/2021	
218	Feb 15/2022		206	Oct 15/2021		234	Oct 15/2021	
34-53 TASKS			207	Oct 15/2021		235	Oct 15/2021	
201	Oct 15/2021		208	BLANK		236	Oct 15/2021	
202	Oct 15/2021		34-57 TASKS			237	Oct 15/2021	
203	Oct 15/2021		201	Oct 15/2021		238	Oct 15/2021	
204	Oct 15/2021		202	Oct 15/2021				

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34-57 TASKS (cont)			34-61 TASKS (cont)			34-61 TASKS (cont)		
239	Oct 15/2021		226	Jun 15/2022		262	Jun 15/2022	
240	Oct 15/2021		227	Jun 15/2022		263	Jun 15/2022	
241	Oct 15/2021		228	Jun 15/2022		264	Jun 15/2022	
242	BLANK		R 229	Oct 15/2023		265	Jun 15/2022	
34-58 TASKS			230	Jun 15/2022		266	Jun 15/2022	
201	Feb 15/2023		231	Jun 15/2022		267	Jun 15/2022	
202	Feb 15/2023		232	Jun 15/2022		268	Jun 15/2022	
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204	Feb 15/2023		234	Jun 15/2022		270	Jun 15/2022	
205	Feb 15/2023		235	Jun 15/2022		271	Jun 15/2022	
206	BLANK		236	Jun 15/2022		272	Jun 15/2022	
34-61 TASKS			237	Jun 15/2022		273	Jun 15/2023	
201	Oct 15/2021		238	Feb 15/2023		274	Jun 15/2023	
202	Oct 15/2021		239	Jun 15/2022		275	Jun 15/2022	
203	Oct 15/2021		240	Jun 15/2022		276	Jun 15/2022	
204	Oct 15/2021		241	Jun 15/2022		277	Jun 15/2022	
205	Oct 15/2021		242	Jun 15/2022		R 278	Oct 15/2023	
206	Oct 15/2021		243	Jun 15/2022		R 279	Oct 15/2023	
207	Oct 15/2021		244	Jun 15/2022		R 280	Oct 15/2023	
208	Oct 15/2021		245	Jun 15/2022		D 281	Oct 15/2023	
209	Oct 15/2021		246	Jun 15/2022		D 282	Oct 15/2023	
210	Oct 15/2021		247	Jun 15/2022		34-61 TASK SUPPORT		
211	Oct 15/2021		248	Jun 15/2022		301	Jun 15/2022	
212	Oct 15/2021		249	Jun 15/2022		302	BLANK	
213	Oct 15/2021		250	Jun 15/2022				
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R 215	Oct 15/2023		252	Jun 15/2022				
216	Jun 15/2022		253	Jun 15/2022				
217	Jun 15/2022		254	Jun 15/2022				
218	Jun 15/2022		R 255	Oct 15/2023				
219	Jun 15/2022		R 256	Oct 15/2023				
220	Jun 15/2022		R 257	Oct 15/2023				
221	Jun 15/2022		258	Jun 15/2022				
222	Jun 15/2022		259	Jun 15/2022				
223	Jun 15/2022		260	Jun 15/2022				
224	Jun 15/2022		261	Jun 15/2022				
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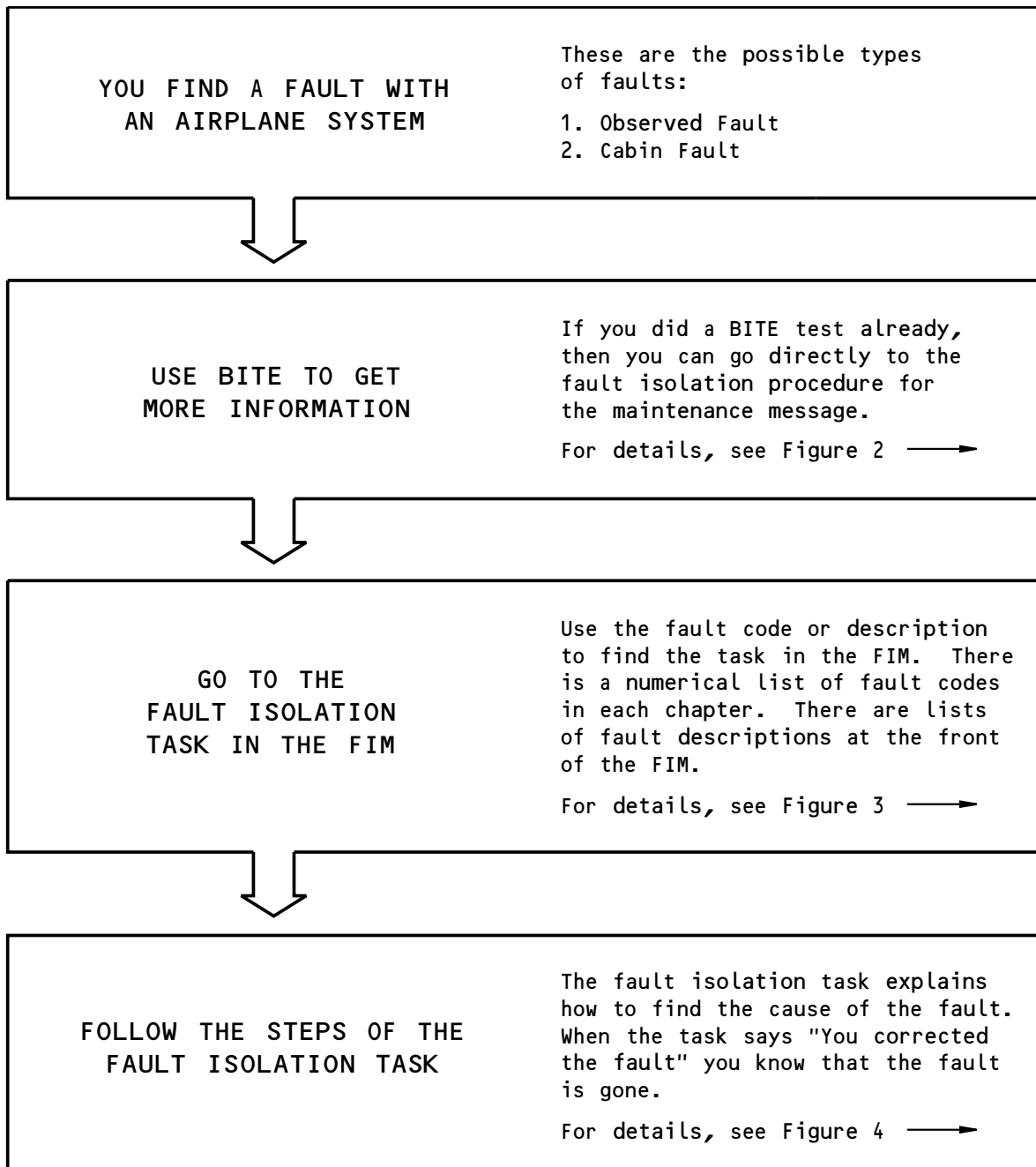
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FAULT ISOLATION MANUAL



G04902 S0000148576_V1

Basic Fault Isolation Process
Figure 1

EFFECTIVITY
SIA ALL

34-HOW TO USE THE FIM

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FAULT ISOLATION MANUAL**

Some airplane systems have built-in test equipment (BITE). IF the system finds a fault when you do a BITE test, it will give you a maintenance message.

A maintenance message can be any of these:

- a code
- a text message
- a light
- an indication.

To find the fault isolation task for a maintenance message, go to the Maintenance Message Index in the chapter for the applicable system.

If you do not know which chapter is the correct one, look at the list at the front of any Maintenance Message Index. For each system or component (LRU) that has BITE, this list gives the chapter number where you can find the Index that you need.

Find the maintenance message for the applicable LRU or system in the Index. Then find the task number on the same line as the maintenance message. Go to the task in the FIM and do the steps of the task (see Figure 4).

G04950 S0000148578_V1

**Getting Fault Information from BITE
Figure 2**

EFFECTIVITY
SIA ALL

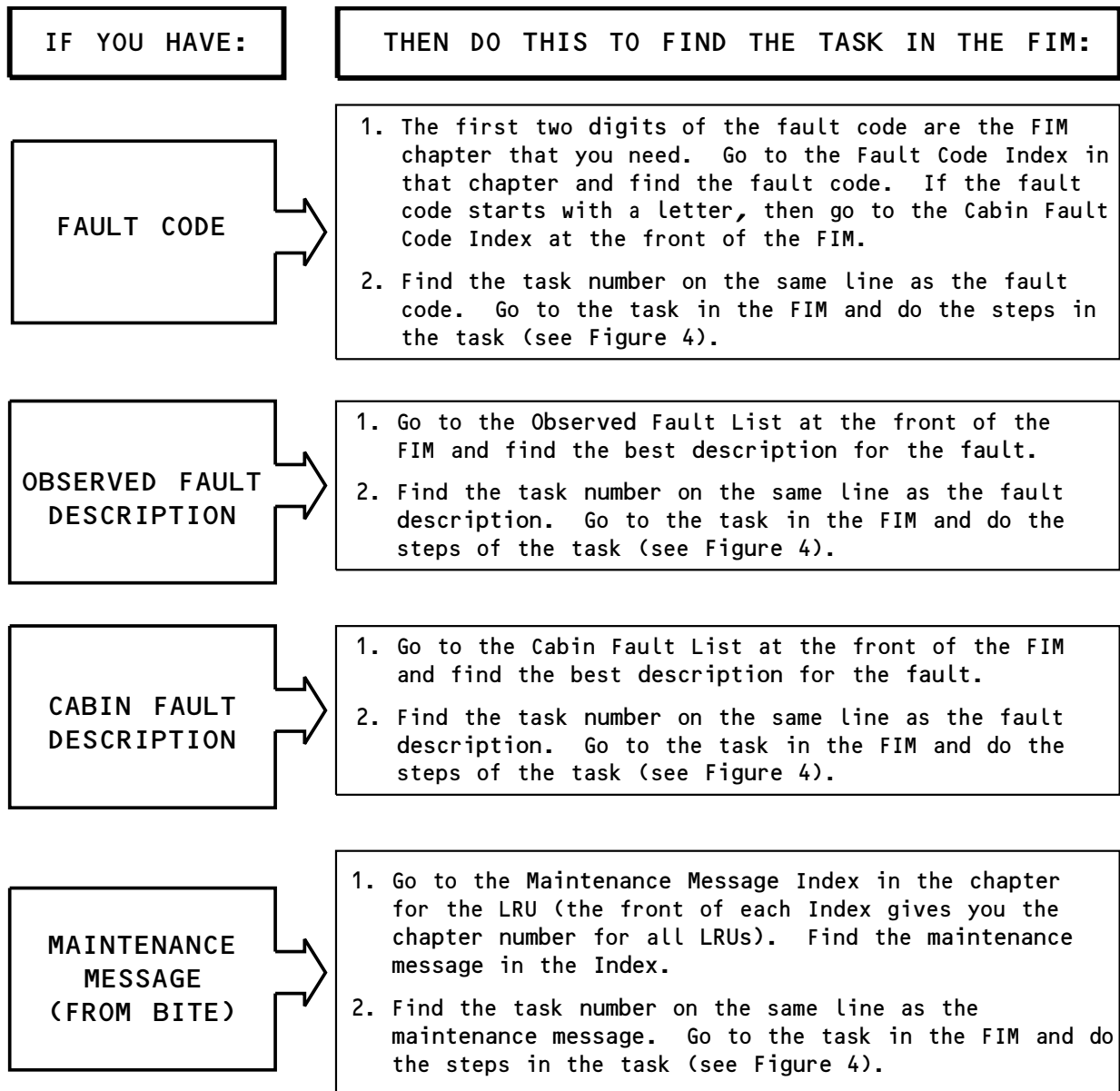
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FAULT ISOLATION MANUAL**



G04979 S0000148579_V2

**Finding the Fault Isolation Task in the FIM
Figure 3**

EFFECTIVITY
SIA ALL

34-HOW TO USE THE FIM

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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

POSSIBLE CAUSES

- The list of possible causes has the most likely cause first and the least likely cause last.
- You can use the maintenance records of your airline to determine if the fault occurred before. Compare the list of possible causes to the past maintenance actions. This will help prevent repetition of the same maintenance actions.

INITIAL EVALUATION PARAGRAPH

- The primary purpose of the Initial Evaluation paragraph at the start of the task is to help you find out if 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 maintenance action to take. Then monitor the airplane to see if the fault happens again on subsequent flights.
- The Initial Evaluation paragraph can also help you find out which Fault Isolation Procedure to use to isolate and correct the fault.

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.

G05009 S0000148580_V3

Doing the Fault Isolation Task Figure 4

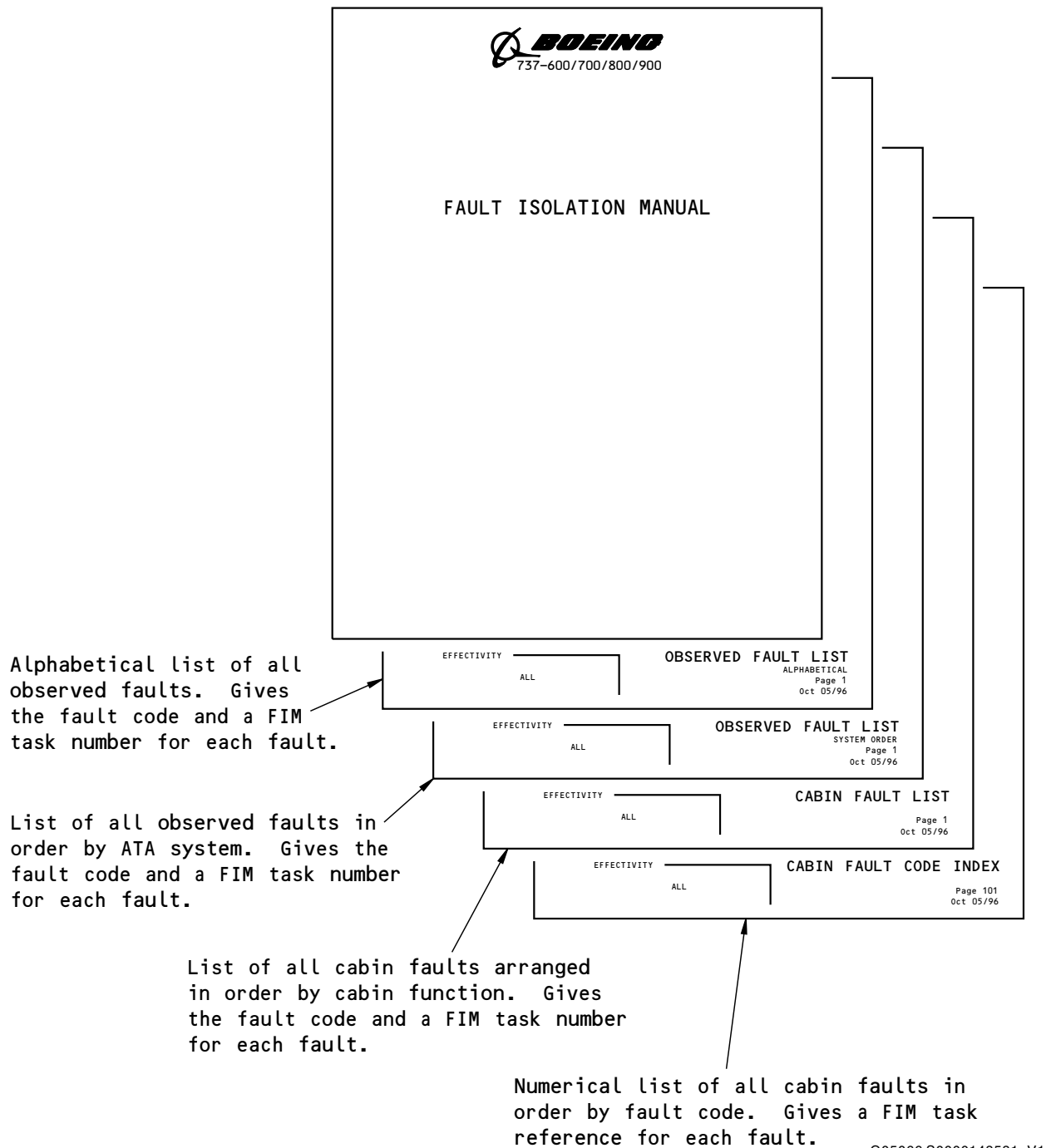
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Subjects at Front of FIM
Figure 5

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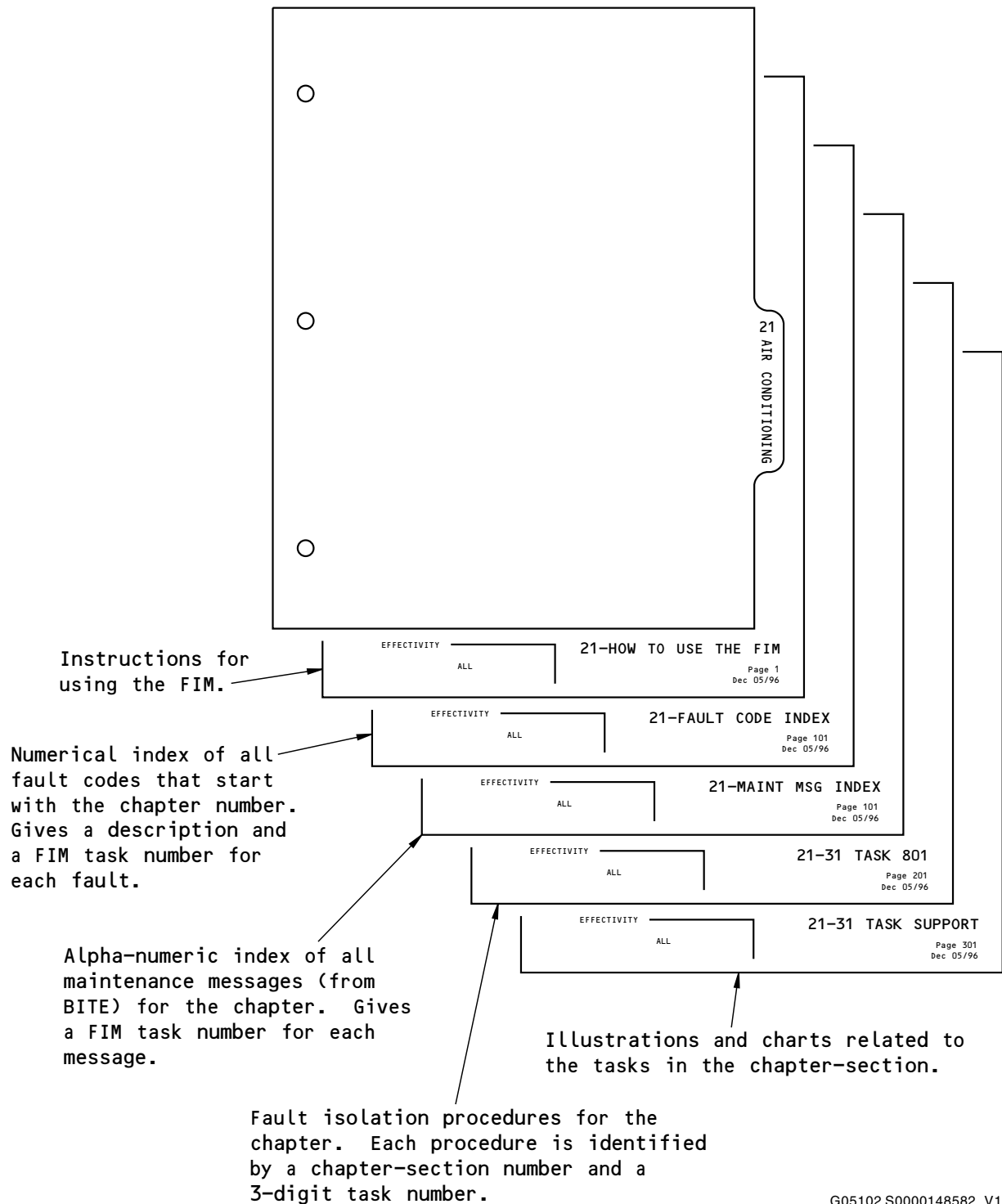
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G05102 S0000148582_V1

Subjects in Each FIM Chapter
Figure 6

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FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
341 030 01	Mach airspeed warning: does not sound when MACH AIRSPEED WARNING TEST switch is pushed - NO 1.	34-16 TASK 801
341 030 02	Mach airspeed warning: does not sound when MACH AIRSPEED WARNING TEST switch is pushed - NO 2.	34-16 TASK 801
342 010 31	ATT flag shows on the EFIS display - captain's.	34-21 TASK 825
342 010 32	ATT flag shows on the EFIS display - first officer's.	34-21 TASK 826
342 015 31	Attitude display: does not show - captain's.	31-63 TASK 809
342 015 32	Attitude display: does not show - first officer's.	31-63 TASK 809
342 020 31	PITCH message shows on the attitude display - captain's.	34-21 TASK 825
342 020 32	PITCH message shows on the attitude display - first officer's.	34-21 TASK 826
342 025 00	Pitch limit indication: does not agree between the captain's and the first officer's display.	34-21 TASK 854
342 030 31	ROLL message shows on the attitude display - captain's.	34-21 TASK 825
342 030 32	ROLL message shows on the attitude display - first officer's.	34-21 TASK 826
342 040 31	SPD flag shows on the EFIS display - captain's.	34-21 TASK 827
342 040 32	SPD flag shows on the EFIS display - first officer's.	34-21 TASK 828
342 044 00	Airspeed display: minimum maneuver speed or minimum speed on captain's PFD disagrees with first officer's PFD.	34-21 TASK 830
342 045 31	Airspeed display: does not show - captain's.	31-63 TASK 809
342 045 32	Airspeed display: does not show - first officer's.	31-63 TASK 809
342 046 31	IAS DISAGREE message shows on airspeed display - captain's.	31-62 TASK 876
342 046 32	IAS DISAGREE message shows on airspeed display - first officer's.	31-62 TASK 876
342 050 00	TAT data: does not show on the engine display.	34-21 TASK 813
342 060 41	DC FAIL light for the IRS on - left.	34-21 TASK 842
342 060 42	DC FAIL light for the IRS on - right.	34-21 TASK 842
342 065 00	Unreliable Airspeed.	31-62 TASK 876
342 070 41	FAULT light for the IRS: light on - left.	34-21 TASK 803
342 070 42	FAULT light for the IRS: light on - right.	34-21 TASK 803
342 080 31	ALT flag shows on the EFIS display - captain's.	34-21 TASK 827
342 080 32	ALT flag shows on the EFIS display - first officer's.	34-21 TASK 828
342 090 31	Altitude display: is blank - captain's.	31-63 TASK 809
342 090 32	Altitude display: is blank - first officer's.	31-63 TASK 809
342 091 31	ALT DISAGREE message shows on airspeed display - captain's.	31-62 TASK 875
342 091 32	ALT DISAGREE message shows on airspeed display - first officer's.	31-62 TASK 875
342 095 00	Unreliable Altitude.	31-62 TASK 875

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FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
342 120 31	TAS data: does not show on the navigation display - captain's.	34-21 TASK 827
342 120 32	TAS data: does not show on the navigation display - first officer's.	34-21 TASK 828
342 130 31	HDG/TRK flag shows on the EFIS display - captain's.	34-21 TASK 825
342 130 32	HDG/TRK flag shows on the EFIS display - first officer's.	34-21 TASK 826
342 140 31	Heading/track display: does not show - captain's.	34-21 TASK 825
342 140 32	Heading/track display: does not show - first officer's.	34-21 TASK 826
342 151 00	Angle of attack (AOA) indication on PFD: captain's and first officer's indicators do not agree.	34-21 TASK 834
342 175 31	VSI flag shows - captain's.	34-21 TASK 825
342 175 32	VSI flag shows - first officer's.	34-21 TASK 826
342 180 31	Vertical speed data: does not show - captain's.	31-63 TASK 809
342 180 32	Vertical speed data: does not show - first officer's.	31-63 TASK 809
342 185 31	Vertical speed pointer: does not show - captain's.	34-21 TASK 825
342 185 32	Vertical speed pointer: does not show - first officer's.	34-21 TASK 826
342 190 00	Call horn: Sounds, equipment cooling problem.	34-21 TASK 829
342 200 41	Call horn: Sounds, ADIRU power problem, ON DC light on - left.	34-21 TASK 829
342 200 42	Call horn: Sounds, ADIRU power problem, ON DC light on - right.	34-21 TASK 829
342 220 00	IRS display unit (ISDU): maintenance code shows in right window when HDG/STS mode selected.	34-21 TASK 835
342 225 00	VERIFY POSITION message shows on CDU and POS SHIFT page shows large IRS drift.	34-21 TASK 836
342 230 00	ALIGN lights for the L and R IRS: lights on flashing.	34-21 TASK 805
342 510 00	Standby magnetic compass error.	34-23 TASK 801
342 601 00	Integrated standby flight display: display blank.	34-24 TASK 804
342 602 00	Integrated standby flight display: ALT flag shows.	34-24 TASK 805
342 603 00	Integrated standby flight display: ATT flag shows.	34-24 TASK 806
342 604 00	Integrated standby flight display: G/S flag shows.	34-24 TASK 808
342 605 00	Integrated standby flight display: HDG flag shows.	34-24 TASK 809
342 606 00	Integrated standby flight display: LOC flag shows.	34-24 TASK 808
342 607 00	Integrated standby flight display: OUT OF ORDER flag shows.	34-24 TASK 810
342 608 00	Integrated standby flight display: PROGRAM PIN ERROR flag shows.	34-24 TASK 811
342 609 00	Integrated standby flight display: SPD flag shows.	34-24 TASK 812
342 610 00	Integrated standby flight display: WAIT ATT flag shows.	34-24 TASK 807
342 611 00	Integrated standby flight display: attitude display disagrees with primary display; no flag shows.	34-24 TASK 814

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FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
343 010 31	LOC flag shows on the EFIS display - captain's.	34-31 TASK 806
343 010 32	LOC flag shows on the EFIS display - first officer's.	34-31 TASK 807
343 020 31	ILS: test problem when you push the TEST switch on the navigation control panel - captain's.	34-31 TASK 801
343 020 32	ILS: test problem when you push the TEST switch on the navigation control panel - first officer's.	34-31 TASK 801
343 030 31	G/S flag shows on the EFIS display - captain's.	34-31 TASK 806
343 030 32	G/S flag shows on the EFIS display - first officer's.	34-31 TASK 807
343 040 00	Navigation control panel: panel problem.	34-31 TASK 808
343 050 31	Localizer and glideslope pointers: do not show, LOC and G/S flags do not show - captain's.	34-31 TASK 809
343 050 32	Localizer and glideslope pointers: do not show, LOC and G/S flags do not show - first officer's.	34-31 TASK 809
343 060 01	ILS: frequency shows dashes - ILS 1.	34-31 TASK 810
343 060 02	ILS: frequency shows dashes - ILS 2.	34-31 TASK 810
343 070 31	ILS: Audio tone does not occur or is weak - captain's.	34-31 TASK 811
343 070 32	ILS: Audio tone does not occur or is weak - first officer's.	34-31 TASK 811
343 080 00	GLU MMR becomes INOP or Date shift due to GPS interference.	34-31 TASK 828
343 110 00	Marker beacon: Audio tone does not occur or is weak when passing marker, indications are normal.	34-32 TASK 801
343 120 00	Marker beacon: indication does not show on the display when passing marker, audio tone does not occur or is weak.	34-32 TASK 802
343 130 00	Marker beacon: indication does not show on the display when passing marker, audio tone is normal.	34-32 TASK 803
343 140 00	Marker beacon: test problem when you push the TEST switch on the navigation control panel.	34-51 TASK 801
343 150 00	Marker beacon: FT does not show on the display when you push the TEST switch on the navigation control panel.	34-32 TASK 803
343 210 31	RA flag shows on the display - captain's.	34-33 TASK 801
343 210 32	RA flag shows on the display - first officer's.	34-33 TASK 801
343 220 31	Radio altitude: altitude indication blank and RA flag does not show - captain's.	34-33 TASK 805
343 220 32	Radio altitude: altitude indication blank and RA flag does not show - first officer's.	34-33 TASK 805
343 221 31	Radio altitude: disagrees with other radio or barometric altitude indications, and RA flag does not show - captain's.	34-33 TASK 801
343 221 32	Radio altitude: disagrees with other radio or barometric altitude indications, and RA flag does not show - first officer's.	34-33 TASK 801
343 330 00	Multi-mode receiver: does not respond when TEST button pushed.	34-31 TASK 818

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FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
343 601 00	Radio Altimeter: problem near 5G base.	34-33 TASK 809
344 010 00	PWS FAIL message shows.	34-43 TASK 815
344 020 31	MAP/WXR RANGE DISAGREE message shows - captain's.	34-43 TASK 810
344 020 32	MAP/WXR RANGE DISAGREE message shows - first officer's.	34-43 TASK 811
344 030 31	WXR ATT message shows - captain's.	34-43 TASK 806
344 030 32	WXR ATT message shows - first officer's.	34-43 TASK 806
344 040 31	WXR DSPY message shows - captain's.	34-43 TASK 812
344 040 32	WXR DSPY message shows - first officer's.	34-43 TASK 813
344 050 31	WXR FAIL message shows - captain's.	34-43 TASK 801
344 050 32	WXR FAIL message shows - first officer's.	34-43 TASK 801
344 060 31	WXR RANGE DISAGREE message shows - captain's.	34-43 TASK 808
344 060 32	WXR RANGE DISAGREE message shows - first officer's.	34-43 TASK 809
344 070 31	WXR STAB message shows - captain's.	34-43 TASK 822
344 070 32	WXR STAB message shows - first officer's.	34-43 TASK 822
344 080 31	WXR WEAK message shows - captain's.	34-43 TASK 802
344 080 32	WXR WEAK message shows - first officer's.	34-43 TASK 802
344 090 31	Weather radar: display blank - captain's.	34-43 TASK 814
344 090 32	Weather radar: display blank - first officer's.	34-43 TASK 814
344 100 41	Weather radar: gain control problem - left.	34-43 TASK 814
344 100 42	Weather radar: gain control problem - right.	34-43 TASK 814
344 110 41	Weather radar: mode selector problem - left.	34-43 TASK 804
344 110 42	Weather radar: mode selector problem - right.	34-43 TASK 804
344 120 31	Weather radar: returns weak or incorrect colors on CDS - captain's.	34-43 TASK 802
344 120 32	Weather radar: returns weak or incorrect colors on CDS - first officer's.	34-43 TASK 802
344 130 41	Weather radar: Tilt control problem - left.	34-43 TASK 814
344 130 42	Weather radar: Tilt control problem - right.	34-43 TASK 814
344 140 00	Weather radar: no aural warnings during system displays test (predictive windshear).	34-43 TASK 820
344 150 00	Weather radar: WINDSHEAR does not show during system displays test (predictive windshear).	34-43 TASK 802
344 160 00	Weather radar: -1 tilt angle shows during system displays test (predictive windshear).	34-43 TASK 806
344 161 00	Weather radar: +1 tilt angle shows during system displays test (predictive windshear).	34-43 TASK 806
344 165 00	Weather radar: -2 tilt angle shows during system displays test (predictive windshear).	34-43 TASK 807

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FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
344 166 00	Weather radar: +2 tilt angle shows during system displays test (predictive windshear).	34-43 TASK 807
344 170 00	Weather radar: -3 tilt angle shows during system displays test (predictive windshear).	34-43 TASK 806
344 171 00	Weather radar: +3 tilt angle shows during system displays test (predictive windshear).	34-43 TASK 806
344 175 00	Weather radar: -4 tilt angle shows during system displays test (predictive windshear).	34-43 TASK 816
344 176 00	Weather radar: +4 tilt angle shows during system displays test (predictive windshear).	34-43 TASK 816
344 180 00	Weather radar: -5 tilt angle shows during system displays test (predictive windshear).	34-43 TASK 817
344 185 00	Weather radar: -6 tilt angle shows during system displays test (predictive windshear).	34-43 TASK 818
344 186 00	Weather radar: -7 tilt angle shows during system displays test (predictive windshear).	34-43 TASK 819
344 190 00	Weather radar: -8 tilt angle shows during system displays test (predictive windshear).	34-43 TASK 821
344 301 00	Weather Radar: inoperative - Left and Right.	34-43 TASK 824
344 310 31	TCAS: display blank - captain's.	34-45 TASK 817
344 310 32	TCAS: display blank - first officer's.	34-45 TASK 817
344 310 48	TCAS: display blank - captain's and first officer's.	34-45 TASK 817
344 320 00	TCAS: intruder symbols show when the airplane is on the ground.	34-45 TASK 820
344 330 00	TCAS: navigation display shows TCAS OFF with the control panel selector switch at TA.	34-45 TASK 815
344 340 00	TCAS: navigation display shows TCAS OFF with the control panel selector switch at TA/RA.	34-45 TASK 815
344 350 00	TCAS: intruder symbol stays directly in front of the airplane symbol on the navigation display.	34-45 TASK 814
344 360 00	TCAS: voice annunciation (aural) problem.	34-45 TASK 816
344 370 00	TCAS FAIL Flag on Navigation Display: Shows with ATC transponder selector at TA and shows with selector at TA/RA.	34-45 TASK 821
344 371 00	TCAS FAIL Flag on Navigation Display: Shows with ATC transponder selector at TA and does not show with selector at TA/RA.	34-45 TASK 821
344 372 00	TCAS FAIL Flag on Navigation Display: Shows with ATC transponder selector at TA/RA and does not show with selector at TA.	34-45 TASK 823
344 380 00	TCAS: intruder symbols do not show on the navigation display.	34-45 TASK 814

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FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
344 390 00	TCAS: system test does not start when the TEST switch is pushed.	34-45 TASK 819
344 395 00	TCAS: system test problem.	34-45 TASK 818
344 410 00	GPWS INOP light: light on.	34-46 TASK 801
344 420 00	GPWS: BITE display is blank.	34-46 TASK 821
344 430 00	TERR POS message shows.	34-46 TASK 856
344 450 00	TERR FAIL message shows.	34-46 TASK 856
344 460 00	TERR RANGE DISAGREE message shows.	34-46 TASK 857
344 470 00	MAP/TERR RANGE DISAGREE message shows.	34-46 TASK 858
344 480 31	Ground proximity: Terrain display does not show - captain's.	34-46 TASK 853
344 480 32	Ground proximity: Terrain display does not show - first officer's.	34-46 TASK 853
344 480 48	Ground proximity: Terrain display does not show - captain's and first officer's.	34-46 TASK 853
344 501 31	Vertical Situation Display problem - captain's.	34-46 TASK 801
344 501 32	Vertical Situation Display problem - first officer's.	34-46 TASK 801
344 502 31	VSD flag shows - captain's.	34-46 TASK 860
344 502 32	VSD flag shows - first officer's.	34-46 TASK 861
345 010 31	VOR: Audio tone does not occur or is weak - captain's.	34-51 TASK 809
345 010 32	VOR: Audio tone does not occur or is weak - first officer's.	34-51 TASK 809
345 020 31	VOR: test problem when you push the TEST switch on the navigation control panel - captain's.	34-51 TASK 801
345 020 32	VOR: test problem when you push the TEST switch on the navigation control panel - first officer's.	34-51 TASK 801
345 030 01	VOR: Bearing pointer 1 does not show, VOR1 flag does not show.	34-51 TASK 805
345 030 02	VOR: Bearing pointer 2 does not show, VOR2 flag does not show.	34-51 TASK 805
345 040 01	VOR1 flag shows on the display.	34-51 TASK 801
345 040 02	VOR2 flag shows on the display.	34-51 TASK 801
345 050 01	VOR: deviation bar does not show on the navigation display - VOR1.	34-51 TASK 806
345 050 02	VOR: deviation bar does not show on the navigation display - VOR2.	34-51 TASK 806
345 060 01	VOR: TO/FROM indication does not show on the navigation display - VOR1.	34-51 TASK 810
345 060 02	VOR: TO/FROM indication does not show on the navigation display - VOR2.	34-51 TASK 810
345 070 01	VOR frequency: shows dashes - VOR1.	34-51 TASK 807

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FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
345 070 02	VOR frequency: shows dashes - VOR2.	34-51 TASK 807
345 110 01	ATC: Altitude reporting does not operate - no. 1.	34-53 TASK 801
345 110 02	ATC: Altitude reporting does not operate - no. 2.	34-53 TASK 801
345 110 48	ATC: Altitude reporting does not operate - no. 1 and no. 2.	34-53 TASK 801
345 113 00	ATC System: XPNDR FAIL light on the ATC Control Panel is on.	34-53 TASK 817
345 120 00	ATC: code indicator does not respond to selector movement.	34-53 TASK 814
345 130 01	ATC: Transmission weak or intermittent - no. 1.	34-53 TASK 802
345 130 02	ATC: Transmission weak or intermittent - no. 2.	34-53 TASK 803
345 130 48	ATC: Transmission weak or intermittent - no. 1 and no. 2.	34-53 TASK 801
345 140 00	ATC: Transponder fail light on.	34-53 TASK 801
345 210 31	DME: test problem when you push the TEST switch on the navigation control panel - captain's.	34-55 TASK 801
345 210 32	DME: test problem when you push the TEST switch on the navigation control panel - first officer's.	34-55 TASK 801
345 220 01	DME1 shows on the display.	34-55 TASK 802
345 220 02	DME2 shows on the display.	34-55 TASK 802
345 230 01	DME: distance shows dashes - DME1.	34-55 TASK 801
345 230 02	DME: distance shows dashes - DME2.	34-55 TASK 801
345 310 01	ADF: Audio problem - no. 1.	34-57 TASK 806
345 310 02	ADF: Audio problem - no. 2.	34-57 TASK 807
345 320 31	ADF: indication blank - no. 1 captain's.	34-57 TASK 808
345 320 32	ADF: indication blank - no. 1 first officer's.	34-57 TASK 809
345 320 48	ADF: indication blank - no. 1 captain's and first officer's.	34-57 TASK 810
345 330 31	ADF: indication blank - no. 2 captain's.	34-57 TASK 811
345 330 32	ADF: indication blank - no. 2 first officer's.	34-57 TASK 812
345 330 48	ADF: indication blank - no. 2 captain's and first officer's.	34-57 TASK 813
345 340 01	ADF: Tone problem - no. 1.	34-57 TASK 814
345 340 02	ADF: Tone problem - no. 2.	34-57 TASK 815
345 350 31	ADF flag shows on the display - no. 1 captain's.	34-57 TASK 816
345 350 32	ADF flag shows on the display - no. 1 first officer's.	34-57 TASK 817
345 360 31	ADF flag shows on the display - no. 2 captain's.	34-57 TASK 818
345 360 32	ADF flag shows on the display - no. 2 first officer's.	34-57 TASK 819
345 370 01	ADF: Bearing pointer 1 does not show, ADF flag does not show - no. 1.	34-57 TASK 820
345 370 02	ADF: Bearing pointer 2 does not show, ADF flag does not show - no. 2.	34-57 TASK 821
345 380 00	ADF control panel problem.	34-57 TASK 822

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FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
345 410 00	IRS mode select unit: GPS light stays on continuously.	34-58 TASK 801
345 411 00	IRS mode select unit: GPS light comes on when Master Caution pushed.	34-58 TASK 802
345 414 00	IRS mode select unit: ILS light stays on continuously.	34-31 TASK 819
345 415 00	IRS mode select unit: ILS light comes on when Master Caution pushed.	34-31 TASK 820
345 416 00	IRS mode select unit: ILS, GLS and GPS lights all stay on continuously.	34-31 TASK 823
345 417 00	IRS mode select unit: ILS, GLS and GPS lights all come on when Master Caution pushed.	34-31 TASK 824
346 010 31	CDU: key does not operate when pushed - captain's.	34-61 TASK 802
346 010 32	CDU: key does not operate when pushed - first officer's.	34-61 TASK 802
346 020 31	CDU: brightness control problem - captain's.	34-61 TASK 803
346 020 32	CDU: brightness control problem - first officer's.	34-61 TASK 803
346 040 31	CDU: display blank - captain's.	34-61 TASK 804
346 040 32	CDU: display blank - first officer's.	34-61 TASK 804
346 050 31	CDU: display is dim or out of focus - captain's.	34-61 TASK 803
346 050 32	CDU: display is dim or out of focus - first officer's.	34-61 TASK 803
346 051 31	CDU: SERVICE BACKLIGHT SOON shows on CDU Scratchpad - captain's.	34-61 TASK 841
346 051 32	CDU: SERVICE BACKLIGHT SOON shows on CDU Scratchpad - first officer's.	34-61 TASK 841
346 060 31	CDU: EXEC key does not operate when pushed - captain's.	34-61 TASK 805
346 060 32	CDU: EXEC key does not operate when pushed - first officer's.	34-61 TASK 805
346 065 31	CDU: EXEC key light bar does not come on - captain's.	34-61 TASK 806
346 065 32	CDU: EXEC key light bar does not come on - first officer's.	34-61 TASK 806
346 070 00	CDU: FMC shows in the middle of the display.	34-61 TASK 807
346 075 00	FMC DISAGREE message shows on CDU.	34-61 TASK 835
346 080 00	CDU: FAIL light is on.	34-61 TASK 807
346 090 31	MAP flag shows on CDS - captain's.	34-61 TASK 801
346 090 32	MAP flag shows on CDS - first officer's.	34-61 TASK 801
346 100 31	MAP RANGE DISAGREE message shows - captain's.	34-61 TASK 830
346 100 32	MAP RANGE DISAGREE message shows - first officer's.	34-61 TASK 830
346 101 00	FMCS: LNAV disengages during flight.	34-61 TASK 844
346 102 00	FMCS: VNAV disengages during flight.	34-61 TASK 845
346 120 00	FMC Nav data crossloading problem.	34-61 TASK 832
346 131 00	FMC menu prompt flashes or is slow to respond.	34-61 TASK 838

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FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
346 141 00	CDU: OAT DISAGREE - DELETED Message shows on the CDU Scratchpad.	34-61 TASK 842
346 145 00	CDU: ATN DATA BASE INVALID Message shows on the CDU Scratchpad.	34-61 TASK 846
346 150 00	CDU: DATALINK FULL message shows.	34-61 TASK 848
346 160 00	NAV DATA OUT OF DATE message shows on CDU.	34-61 TASK 808
346 180 00	RESYNC FAIL, SINGLE FMC OP/SINGLE FMC OP message shows on CDU.	34-61 TASK 832
346 200 31	VTK flag shows - captain's.	34-61 TASK 801
346 200 32	VTK flag shows - first officer's.	34-61 TASK 801
346 230 00	Thrust mode: does not show on the engine display.	34-61 TASK 809
346 260 00	CDU: OP PROGRAM INVALID shows in the middle of the display.	34-61 TASK 811
346 270 31	CDU: MSG light does not come on - captain's.	34-61 TASK 810
346 270 32	CDU: MSG light does not come on - first officer's.	34-61 TASK 810
346 280 31	CDU: OFST light does not come on - captain's.	34-61 TASK 810
346 280 32	CDU: OFST light does not come on - first officer's.	34-61 TASK 810
346 300 00	FMC software load: DB EXCEEDS FMC MEMORY message shows on CDU.	34-61 TASK 813
346 310 00	FMC software load: RESET COUNT EXCEEDED message shows on CDU.	34-61 TASK 814
346 320 00	FMC software load: DB-OPF INCOMPATIBLE message shows on CDU.	34-61 TASK 815
346 330 00	FMC software load: CHECK MEDIA message shows on CDU.	34-61 TASK 816
346 340 00	FMC software load: INCORRECT DISK INSERTED message shows on CDU.	34-61 TASK 817
346 350 00	CDU: SCANNING DME FAIL message shows.	34-61 TASK 801
346 360 00	CDU: DATA BASE INVALID message shows.	34-61 TASK 818
346 365 31	CDU: DATALINK FAIL message shows - captain's.	23-27 TASK 801
346 365 32	CDU: DATALINK FAIL message shows - first officer's.	23-27 TASK 801
346 370 00	CDU: SINGLE FMC OPERATION message shows.	34-61 TASK 807
346 375 00	CDU: PRINTER FAIL message shows.	31-33 TASK 804
346 380 00	CDU: MODEL/ENG DATA INVALID message shows.	34-61 TASK 819
346 390 00	CDU: PROGRAM PIN ERROR message shows.	34-61 TASK 820
346 400 00	CDU: PROGRAM PIN NOT IN DB message shows.	34-61 TASK 821
346 440 00	CDU: IRS-L data on POS REF display is missing.	34-61 TASK 801
346 450 00	CDU: IRS-R data on POS REF display is missing.	34-61 TASK 801
346 460 00	CDU: GPS-L data on POS REF display is missing.	34-61 TASK 801

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FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
346 470 00	CDU: GPS-R data on POS REF display is missing.	34-61 TASK 801
346 480 00	CDU: GS data on POS REF display is missing.	34-61 TASK 801
346 490 00	CDU: VOR data on NAV STATUS display shows FAIL.	34-61 TASK 801
346 500 00	CDU: ILS data on NAV STATUS display shows FAIL.	34-61 TASK 801
346 510 00	CDU: DME data on NAV STATUS display shows FAIL.	34-61 TASK 801

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<u>LRU/SYSTEM</u>	<u>SHORT NAME</u>	<u>CHAPTER</u>
Air Data Inertial Reference System	ADIRS	34
Air Traffic Controller Transponder - 1 (Left)	ATC XPDR - 1 (L)	34
Air Traffic Controller Transponder - 2 (Right)	ATC XPDR - 2 (R)	34
Airborne Vibration Monitor System Signal Conditioner	AVM SIG COND	77
Antiskid Control Unit	ANTISKID	32
Attendant Control Panel	ACP	23
Automatic Direction Finder Receiver - 1	ADF RECVR - 1	34
Automatic Direction Finder Receiver - 2	ADF RECVR - 2	34
Autothrottle Computer	A/T COMPUTER	22
Auxiliary Power Unit	APU	49
Auxiliary Power Unit Generator Control Unit	APU GCU	24
Bus Power Control Unit	BPCU	24
Cabin Pressure Controller	CAB PRESS CON	21
Cargo Electronic Unit - Lower Aft	CEU - LWR AFT	26
Cargo Electronic Unit - Lower Forward	CEU - LWR FWD	26
Cargo Electronic Unit - Main Aft	CEU - MAIN AFT	26
Cargo Fire Control Panel	CFCP	26
Common Display System	CDS	31
Compartment Overheat Detection Control Module	WING/BODY OHT	26
Digital Flight Control System	DFCS	22
Distance Measurement Equipment Interrogator	DME INTRROGTR	34
Electrical Meters, Battery, and Galley Power Module	P5-13	24
Electronic Engine Controller - 1	ENGINE - 1	73
Electronic Engine Controller - 2	ENGINE - 2	73
Emergency Locator Transmitter	ELT	23
Engine Accessory Unit	EAU	78
Engine Accessory Unit/TR DEPLOY ENG 1	EAU/TR DPLOY-ENG 1	78
Engine Accessory Unit/TR DEPLOY ENG 2	EAU/TR DPLOY-ENG 2	78
Engine Accessory Unit/TR STOW ENG 1	EAU/TR STOW-ENG 1	78
Engine Accessory Unit/TR STOW ENG 2	EAU/TR STOW-ENG 2	78
Engine and Auxiliary Power Unit Fire Detection Control Module	ENG/APU FIRE	26
Enhanced Digital Flight Control Computer-A	EDFCC-A	22
Enhanced Digital Flight Control System	EDFCS	22
Flap/Slat Electronics Unit	FSEU	27
Flight Data Acquisition Unit	FDAU	31

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Flight Management Computer System	FMCS	34
Fuel Quantity Indicating System	FQIS	28
Generator Control Unit - 1	GCU - 1	24
Generator Control Unit - 2	GCU - 2	24
Ground Proximity Computer	GROUND PROX	34
High Frequency Transceiver	HF XCVR	23
Multi-Mode Receiver	MMR	34
Nitrogen Generation System BITE Display Unit	NGS	47
Pack Flow Temperature Controller	PFTC	21
Pack/Zone Temperature Controller - Left	PACK/ZN CON - L	21
Pack/Zone Temperature Controller - Right	PACK/ZN CON - R	21
Proximity Switch Electronics Unit	PSEU	32
Radio Altimeter Receiver/Transmitter	RADIO ALTIMTR	34
Satellite Communications System	SATCOM	23
Stall Management Yaw Damper Computer - 1	SMYD - 1	27
Stall Management Yaw Damper Computer - 2	SMYD - 2	27
Traffic Alert and Collision Avoidance System Computer	TCAS COMPUTER	34
VHF Omnidirectional Ranging Marker Beacon Receiver	VOR/MKR RCVR	34
Very High Frequency Transceiver	VHF XCVR	23
Waste Tank Logic Control Module	WASTE TANK	38
Weather Radar Receiver/Transmitter	WEATHER RADAR	34
Window Heat Control Unit - Left Forward	WHCU - L FWD	30
Window Heat Control Unit - Left Side	WHCU - L SIDE	30
Window Heat Control Unit - Right Forward	WHCU - R FWD	30
Window Heat Control Unit - Right Side	WHCU - R SIDE	30
Window Heat Control Unit 1 - Left Forward and Right Side	WHCU1 - L FWD/R SIDE	30
Window Heat Control Unit 2 - Right Forward and Left Side	WHCU2 - R FWD/L SIDE	30

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ADF RECVR - 1	CONTROL FAIL	34-57 TASK 823
ADF RECVR - 1	LRU STATUS	34-57 TASK 802
ADF RECVR - 2	CONTROL FAIL	34-57 TASK 824
ADF RECVR - 2	LRU STATUS	34-57 TASK 825
ADIRS	34-21001 ISDU FAIL	34-21 TASK 802
ADIRS	34-21002 IR FAILURE	34-21 TASK 803
ADIRS	34-21003 EXCESSIVE MOTION	34-21 TASK 804
ADIRS	34-21004 ALIGN FAULT	34-21 TASK 805
ADIRS	34-21007 ADR DATA INVLD	34-21 TASK 840
ADIRS	34-21008 ENTER PPOS	34-21 TASK 807
ADIRS	34-21009 ENTER HEADING	34-21 TASK 808
ADIRS	34-21010 ISDU POWER LOSS	34-21 TASK 809
ADIRS	34-21018 NO ADR DATA	34-21 TASK 841
ADIRS	34-21019 IR PROG PIN INVLD	34-21 TASK 811
ADIRS	34-21020 ADR FAIL	34-21 TASK 839
ADIRS	34-21021 ADR PROG PIN INVLD	34-21 TASK 812
ADIRS	34-21022 TAT PROBE SIGNAL FAIL	34-21 TASK 813
ADIRS	34-21023 AOA SIGNAL FAIL	34-21 TASK 814
ADIRS	34-21024 NO AOA REF SIGNAL	34-21 TASK 815
ADIRS	34-21027 NO PITOT ADM DATA	34-21 TASK 816
ADIRS	34-21028 NO STATIC ADM DATA	34-21 TASK 817
ADIRS	34-21029 NO BARO 1 DATA	34-21 TASK 818
ADIRS	34-21030 NO BARO 2 DATA	34-21 TASK 819
ADIRS	34-21031 NO IR DATA	34-21 TASK 810
ADIRS	34-21032 PITOT ADM DATA INVLD	34-21 TASK 820
ADIRS	34-21033 STATIC ADM DATA INVLD	34-21 TASK 821
ADIRS	34-21034 BARO 1 DATA INVLD	34-21 TASK 822
ADIRS	34-21035 BARO 2 DATA INVLD	34-21 TASK 823
ADIRS	34-21037 IR DATA INVLD	34-21 TASK 806
ADIRS	34-21038 AIR/GND LOGIC INVLD	34-21 TASK 824
ADIRS	34-21039 ADR PIN PAR TST FAIL	34-21 TASK 843
ADIRS	34-21040 AIRFRAME ID INVLD	34-21 TASK 844
ADIRS	34-21041 NO ADR DATA	34-21 TASK 845
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ADIRS	34-21044 SENSOR SRC SEL INVLD	34-21 TASK 848
ADIRS	34-21045 BARO 1 REFERENCE FAIL	34-21 TASK 849
ADIRS	34-21046 AOA 1 REFERENCE FAIL	34-21 TASK 850
ADIRS	34-21047 BARO 2 REFERENCE FAIL	34-21 TASK 851
ADIRS	34-21048 AOA 2 REFERENCE FAIL	34-21 TASK 852
ATC XPDR - 1 (L)	ALT SIG	34-53 TASK 804
ATC XPDR - 1 (L)	BOT ANT	34-53 TASK 808
ATC XPDR - 1 (L)	CNTL PNL	34-53 TASK 810
ATC XPDR - 1 (L)	TOP ANT	34-53 TASK 806
ATC XPDR - 1 (L)	XPDR FAIL	34-53 TASK 802
ATC XPDR - 2 (R)	ALT SIG	34-53 TASK 805
ATC XPDR - 2 (R)	BOT ANT	34-53 TASK 809
ATC XPDR - 2 (R)	CNTL PNL	34-53 TASK 811
ATC XPDR - 2 (R)	TOP ANT	34-53 TASK 807
ATC XPDR - 2 (R)	XPDR FAIL	34-53 TASK 803
DME INTRROGTR	CONTROL FAIL	34-55 TASK 806
DME INTRROGTR	LRU STATUS	34-55 TASK 802
FMCS	ADIRS-L - BARO ALT 1 - PARITY	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 1 - RATE	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 1 - REASON	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 1 - SSM	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 2 - PARITY	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 2 - RATE	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 2 - REASON	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 2 - SSM	34-61 TASK 824
FMCS	ADIRS-L - BUFF OVERFLOW	34-61 TASK 824
FMCS	ADIRS-L - COMP AIR SPD - PARITY	34-61 TASK 824
FMCS	ADIRS-L - COMP AIR SPD - RATE	34-61 TASK 824
FMCS	ADIRS-L - COMP AIR SPD - REASON	34-61 TASK 824
FMCS	ADIRS-L - COMP AIR SPD - SSM	34-61 TASK 824
FMCS	ADIRS-L - DISCRETE 270 - PARITY	34-61 TASK 824
FMCS	ADIRS-L - DISCRETE 270 - REASON	34-61 TASK 824
FMCS	ADIRS-L - DISCRETE 270 - SSM	34-61 TASK 824
FMCS	ADIRS-L - DISCRETE 274 - PARITY	34-61 TASK 824
FMCS	ADIRS-L - DISCRETE 274 - SSM	34-61 TASK 824

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FMCS	ADIRS-L - GND SPEED - PARITY	34-61 TASK 824
FMCS	ADIRS-L - GND SPEED - RATE	34-61 TASK 824
FMCS	ADIRS-L - GND SPEED - REASON	34-61 TASK 824
FMCS	ADIRS-L - GND SPEED - SSM	34-61 TASK 824
FMCS	ADIRS-L - INERT V SPD - PARITY	34-61 TASK 824
FMCS	ADIRS-L - INERT V SPD - RATE	34-61 TASK 824
FMCS	ADIRS-L - INERT V SPD - REASON	34-61 TASK 824
FMCS	ADIRS-L - INERT V SPD - SSM	34-61 TASK 824
FMCS	ADIRS-L - INERTIAL ALT - PARITY	34-61 TASK 824
FMCS	ADIRS-L - INERTIAL ALT - RATE	34-61 TASK 824
FMCS	ADIRS-L - INERTIAL ALT - REASON	34-61 TASK 824
FMCS	ADIRS-L - INERTIAL ALT - SSM	34-61 TASK 824
FMCS	ADIRS-L - MACH - PARITY	34-61 TASK 824
FMCS	ADIRS-L - MACH - RATE	34-61 TASK 824
FMCS	ADIRS-L - MACH - REASON	34-61 TASK 824
FMCS	ADIRS-L - MACH - SSM	34-61 TASK 824
FMCS	ADIRS-L - MAG HEADING - PARITY	34-61 TASK 824
FMCS	ADIRS-L - MAG HEADING - RATE	34-61 TASK 824
FMCS	ADIRS-L - MAG HEADING - SSM	34-61 TASK 824
FMCS	ADIRS-L - PITCH ANGLE - PARITY	34-61 TASK 824
FMCS	ADIRS-L - PITCH ANGLE - RATE	34-61 TASK 824
FMCS	ADIRS-L - PITCH ANGLE - REASON	34-61 TASK 824
FMCS	ADIRS-L - PITCH ANGLE - SSM	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LAT - PARITY	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LAT - RATE	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LAT - REASON	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LAT - SSM	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LON - PARITY	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LON - RATE	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LON - SSM	34-61 TASK 824
FMCS	ADIRS-L - PRESSURE ALT - PARITY	34-61 TASK 824
FMCS	ADIRS-L - PRESSURE ALT - RATE	34-61 TASK 824
FMCS	ADIRS-L - PRESSURE ALT - REASON	34-61 TASK 824
FMCS	ADIRS-L - PRESSURE ALT - SSM	34-61 TASK 824

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FMCS	ADIRS-L - ROLL ANGLE - PARITY	34-61 TASK 824
FMCS	ADIRS-L - ROLL ANGLE - RATE	34-61 TASK 824
FMCS	ADIRS-L - ROLL ANGLE - SSM	34-61 TASK 824
FMCS	ADIRS-L - SAT - PARITY	34-61 TASK 824
FMCS	ADIRS-L - SAT - RATE	34-61 TASK 824
FMCS	ADIRS-L - SAT - REASON	34-61 TASK 824
FMCS	ADIRS-L - SAT - SSM	34-61 TASK 824
FMCS	ADIRS-L - TAT - PARITY	34-61 TASK 824
FMCS	ADIRS-L - TAT - RATE	34-61 TASK 824
FMCS	ADIRS-L - TAT - REASON	34-61 TASK 824
FMCS	ADIRS-L - TAT - SSM	34-61 TASK 824
FMCS	ADIRS-L - TRUE AIR SPD - PARITY	34-61 TASK 824
FMCS	ADIRS-L - TRUE AIR SPD - RATE	34-61 TASK 824
FMCS	ADIRS-L - TRUE AIR SPD - REASON	34-61 TASK 824
FMCS	ADIRS-L - TRUE AIR SPD - SSM	34-61 TASK 824
FMCS	ADIRS-L - TRUE HEADING - PARITY	34-61 TASK 824
FMCS	ADIRS-L - TRUE HEADING - RATE	34-61 TASK 824
FMCS	ADIRS-L - TRUE HEADING - SSM	34-61 TASK 824
FMCS	ADIRS-L - VEL E-W - PARITY	34-61 TASK 824
FMCS	ADIRS-L - VEL E-W - RATE	34-61 TASK 824
FMCS	ADIRS-L - VEL E-W - REASON	34-61 TASK 824
FMCS	ADIRS-L - VEL E-W - SSM	34-61 TASK 824
FMCS	ADIRS-L - VEL N-S - PARITY	34-61 TASK 824
FMCS	ADIRS-L - VEL N-S - RATE	34-61 TASK 824
FMCS	ADIRS-L - VEL N-S - REASON	34-61 TASK 824
FMCS	ADIRS-L - VEL N-S - SSM	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 1 - PARITY	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 1 - RATE	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 1 - REASON	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 1 - SSM	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 2 - PARITY	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 2 - RATE	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 2 - REASON	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 2 - SSM	34-61 TASK 824
FMCS	ADIRS-R - BUFF OVERFLOW	34-61 TASK 824

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FMCS	ADIRS-R - COMP AIR SPD - RATE	34-61 TASK 824
FMCS	ADIRS-R - COMP AIR SPD - REASON	34-61 TASK 824
FMCS	ADIRS-R - COMP AIR SPD - SSM	34-61 TASK 824
FMCS	ADIRS-R - DISCRETE 270 - PARITY	34-61 TASK 824
FMCS	ADIRS-R - DISCRETE 270 - REASON	34-61 TASK 824
FMCS	ADIRS-R - DISCRETE 270 - SSM	34-61 TASK 824
FMCS	ADIRS-R - DISCRETE 274 - PARITY	34-61 TASK 824
FMCS	ADIRS-R - DISCRETE 274 - SSM	34-61 TASK 824
FMCS	ADIRS-R - FAIL	34-61 TASK 824
FMCS	ADIRS-R - GND SPEED - PARITY	34-61 TASK 824
FMCS	ADIRS-R - GND SPEED - RATE	34-61 TASK 824
FMCS	ADIRS-R - GND SPEED - REASON	34-61 TASK 824
FMCS	ADIRS-R - GND SPEED - SSM	34-61 TASK 824
FMCS	ADIRS-R - INERT V SPD - PARITY	34-61 TASK 824
FMCS	ADIRS-R - INERT V SPD - RATE	34-61 TASK 824
FMCS	ADIRS-R - INERT V SPD - REASON	34-61 TASK 824
FMCS	ADIRS-R - INERT V SPD - SSM	34-61 TASK 824
FMCS	ADIRS-R - INERTIAL ALT - PARITY	34-61 TASK 824
FMCS	ADIRS-R - INERTIAL ALT - RATE	34-61 TASK 824
FMCS	ADIRS-R - INERTIAL ALT - REASON	34-61 TASK 824
FMCS	ADIRS-R - INERTIAL ALT - SSM	34-61 TASK 824
FMCS	ADIRS-R - MACH - PARITY	34-61 TASK 824
FMCS	ADIRS-R - MACH - RATE	34-61 TASK 824
FMCS	ADIRS-R - MACH - REASON	34-61 TASK 824
FMCS	ADIRS-R - MACH - SSM	34-61 TASK 824
FMCS	ADIRS-R - MAG HEADING - PARITY	34-61 TASK 824
FMCS	ADIRS-R - MAG HEADING - RATE	34-61 TASK 824
FMCS	ADIRS-R - MAG HEADING - SSM	34-61 TASK 824
FMCS	ADIRS-R - PITCH ANGLE - PARITY	34-61 TASK 824
FMCS	ADIRS-R - PITCH ANGLE - RATE	34-61 TASK 824
FMCS	ADIRS-R - PITCH ANGLE - REASON	34-61 TASK 824
FMCS	ADIRS-R - PITCH ANGLE - SSM	34-61 TASK 824
FMCS	ADIRS-R - PRES POS LAT - PARITY	34-61 TASK 824
FMCS	ADIRS-R - PRES POS LAT - RATE	34-61 TASK 824

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FMCS	ADIRS-R - PRES POS LAT - SSM	34-61 TASK 824
FMCS	ADIRS-R - PRES POS LON - PARITY	34-61 TASK 824
FMCS	ADIRS-R - PRES POS LON - RATE	34-61 TASK 824
FMCS	ADIRS-R - PRES POS LON - SSM	34-61 TASK 824
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FMCS	ADIRS-R - PRESSURE ALT - RATE	34-61 TASK 824
FMCS	ADIRS-R - PRESSURE ALT - REASON	34-61 TASK 824
FMCS	ADIRS-R - PRESSURE ALT - SSM	34-61 TASK 824
FMCS	ADIRS-R - ROLL ANGLE - PARITY	34-61 TASK 824
FMCS	ADIRS-R - ROLL ANGLE - RATE	34-61 TASK 824
FMCS	ADIRS-R - ROLL ANGLE - SSM	34-61 TASK 824
FMCS	ADIRS-R - SAT - PARITY	34-61 TASK 824
FMCS	ADIRS-R - SAT - RATE	34-61 TASK 824
FMCS	ADIRS-R - SAT - REASON	34-61 TASK 824
FMCS	ADIRS-R - SAT - SSM	34-61 TASK 824
FMCS	ADIRS-R - TAT - PARITY	34-61 TASK 824
FMCS	ADIRS-R - TAT - RATE	34-61 TASK 824
FMCS	ADIRS-R - TAT - REASON	34-61 TASK 824
FMCS	ADIRS-R - TAT - SSM	34-61 TASK 824
FMCS	ADIRS-R - TRUE AIR SPD - PARITY	34-61 TASK 824
FMCS	ADIRS-R - TRUE AIR SPD - RATE	34-61 TASK 824
FMCS	ADIRS-R - TRUE AIR SPD - REASON	34-61 TASK 824
FMCS	ADIRS-R - TRUE AIR SPD - SSM	34-61 TASK 824
FMCS	ADIRS-R - TRUE HEADING - PARITY	34-61 TASK 824
FMCS	ADIRS-R - TRUE HEADING - RATE	34-61 TASK 824
FMCS	ADIRS-R - TRUE HEADING - SSM	34-61 TASK 824
FMCS	ADIRS-R - VEL E-W - PARITY	34-61 TASK 824
FMCS	ADIRS-R - VEL E-W - RATE	34-61 TASK 824
FMCS	ADIRS-R - VEL E-W - REASON	34-61 TASK 824
FMCS	ADIRS-R - VEL E-W - SSM	34-61 TASK 824
FMCS	ADIRS-R - VEL N-S - PARITY	34-61 TASK 824
FMCS	ADIRS-R - VEL N-S - RATE	34-61 TASK 824
FMCS	ADIRS-R - VEL N-S - REASON	34-61 TASK 824
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FMCS	CDS DEU-L - DISCRETE 272 - PARITY	34-61 TASK 827
FMCS	CDS DEU-L - DISCRETE 272 - SSM	34-61 TASK 827
FMCS	CDS DEU-L - DISCRETE 273 - PARITY	34-61 TASK 827
FMCS	CDS DEU-L - DISCRETE 273 - SSM	34-61 TASK 827
FMCS	CDS DEU-L - DISCRETE 350 - PARITY	34-61 TASK 827
FMCS	CDS DEU-L - DISCRETE 350 - SSM	34-61 TASK 827
FMCS	CDS DEU-R - BUFF OVERFLOW	34-61 TASK 827
FMCS	CDS DEU-R - DISCRETE 272 - PARITY	34-61 TASK 827
FMCS	CDS DEU-R - DISCRETE 272 - SSM	34-61 TASK 827
FMCS	CDS DEU-R - DISCRETE 273 - PARITY	34-61 TASK 827
FMCS	CDS DEU-R - DISCRETE 273 - SSM	34-61 TASK 827
FMCS	CDS DEU-R - DISCRETE 350 - PARITY	34-61 TASK 827
FMCS	CDS DEU-R - DISCRETE 350 - SSM	34-61 TASK 827
FMCS	CLOCK - BUFF OVERFLOW	34-61 TASK 829
FMCS	CLOCK - DATE - PARITY	34-61 TASK 829
FMCS	CLOCK - DATE - SSM	34-61 TASK 829
FMCS	DFCS - BUFF OVERFLOW	34-61 TASK 825
FMCS	DFCS - DISCRETE 270 - PARITY	34-61 TASK 825
FMCS	DFCS - DISCRETE 270 - SSM	34-61 TASK 825
FMCS	DFCS - DISCRETE 272 - PARITY	34-61 TASK 825
FMCS	DFCS - DISCRETE 272 - SSM	34-61 TASK 825
FMCS	DFCS - DISCRETE 274 - PARITY	34-61 TASK 825
FMCS	DFCS - DISCRETE 274 - REASON	34-61 TASK 825
FMCS	DFCS - DISCRETE 274 - SSM	34-61 TASK 825
FMCS	DFCS - FLAP POS - PARITY	34-61 TASK 825
FMCS	DFCS - FLAP POS - RATE	34-61 TASK 825
FMCS	DFCS - FLAP POS - REASON	34-61 TASK 825
FMCS	DFCS - FLAP POS - SSM	34-61 TASK 825
FMCS	DFCS - FOREIGN COURSE - PARITY	34-61 TASK 825
FMCS	DFCS - FOREIGN COURSE - RATE	34-61 TASK 825
FMCS	DFCS - FOREIGN COURSE - SSM	34-61 TASK 825
FMCS	DFCS - LOCAL COURSE - PARITY	34-61 TASK 825
FMCS	DFCS - LOCAL COURSE - RATE	34-61 TASK 825
FMCS	DFCS - LOCAL COURSE - SSM	34-61 TASK 825

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FMCS	DFCS - SELECT ALT - PARITY	34-61 TASK 825
FMCS	DFCS - SELECT ALT - RATE	34-61 TASK 825
FMCS	DFCS - SELECT ALT - REASON	34-61 TASK 825
FMCS	DFCS - SELECT ALT - SSM	34-61 TASK 825
FMCS	DFCS - TARGET AIRSPEED - PARITY	34-61 TASK 825
FMCS	DFCS - TARGET AIRSPEED - RATE	34-61 TASK 825
FMCS	DFCS - TARGET AIRSPEED - REASON	34-61 TASK 825
FMCS	DFCS - TARGET AIRSPEED - SSM	34-61 TASK 825
FMCS	DME-L - DME DISTANCE - REASON	34-61 TASK 828
FMCS	DME-L - DME DISTANCE - SSM	34-61 TASK 828
FMCS	DME-L - DME FREQUENCY - REASON	34-61 TASK 828
FMCS	DME-R - DME DISTANCE - REASON	34-61 TASK 828
FMCS	DME-R - DME DISTANCE - SSM	34-61 TASK 828
FMCS	DME-R - DME FREQUENCY - REASON	34-61 TASK 828
FMCS	FMC-L - PGM FAULT	34-61 TASK 807
FMCS	FMC-R - PGM FAULT	34-61 TASK 807
FMCS	FQIS - TOTAL FUEL - PARITY	34-61 TASK 826
FMCS	FQIS - TOTAL FUEL - RATE	34-61 TASK 826
FMCS	ILS-L - ILS FREQUENCY - PARITY	34-61 TASK 823
FMCS	ILS-L - ILS FREQUENCY - RATE	34-61 TASK 823
FMCS	ILS-L - LOC DEVIATION - PARITY	34-61 TASK 823
FMCS	ILS-L - LOC DEVIATION - RATE	34-61 TASK 823
FMCS	ILS-R - ILS FREQUENCY - PARITY	34-61 TASK 823
FMCS	ILS-R - ILS FREQUENCY - RATE	34-61 TASK 823
FMCS	ILS-R - LOC DEVIATION - PARITY	34-61 TASK 823
FMCS	ILS-R - LOC DEVIATION - RATE	34-61 TASK 823
FMCS	MMR-L - GPS MAINT	34-61 TASK 834
FMCS	MMR-R - GPS MAINT	34-61 TASK 834
FMCS	VOR-L - VOR BEARING - PARITY	34-61 TASK 822
FMCS	VOR-L - VOR BEARING - RATE	34-61 TASK 822
FMCS	VOR-L - VOR FREQUENCY - PARITY	34-61 TASK 822
FMCS	VOR-L - VOR FREQUENCY - RATE	34-61 TASK 822
FMCS	VOR-R - VOR BEARING - PARITY	34-61 TASK 822
FMCS	VOR-R - VOR BEARING - RATE	34-61 TASK 822
FMCS	VOR-R - VOR FREQUENCY - PARITY	34-61 TASK 822

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FMCS	VOR-R - VOR FREQUENCY - RATE	34-61 TASK 822
GROUND PROX	AIR DATA BUS 1 BAROMETRIC ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 1 BAROMETRIC RATE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 1 COMPUTED AIRSPEED FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 1 CORRECTED ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 1 INACTIVE	34-46 TASK 822
GROUND PROX	AIR DATA BUS 1 QNH CORRECTED ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 1 STATIC AIR TEMPERATURE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 1 TRUE AIRSPEED FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 BAROMETRIC ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 BAROMETRIC RATE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 COMPUTED AIRSPEED FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 CORRECTED ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 INACTIVE	34-46 TASK 823
GROUND PROX	AIR DATA BUS 2 QNH CORRECTED ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 STATIC AIR TEMPERATURE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 TRUE AIRSPEED FAULT	34-46 TASK 840
GROUND PROX	AIR/GROUND INVALID	34-46 TASK 839
GROUND PROX	AIRCRAFT TYPE INVALID	34-46 TASK 855
GROUND PROX	APPLICATION DATABASE FAILED	34-46 TASK 854
GROUND PROX	ARINC-429 RECEIVER FAILED	34-46 TASK 854
GROUND PROX	ARINC-429 TRANSMITTER FAILED	34-46 TASK 854
GROUND PROX	AUDIO MENU INVALID	34-46 TASK 855
GROUND PROX	CALLOUTS OPTION INVALID	34-46 TASK 855
GROUND PROX	CONFIGURATION DATABASE FAILED	34-46 TASK 854
GROUND PROX	EFIS BUS 1 DECISION HEIGHT FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 1 DISCRETE WORD 1 FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 1 DISCRETE WORD 2 LEFT FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 1 DISCRETE WORD 2 RIGHT FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 1 INACTIVE	34-46 TASK 826
GROUND PROX	EFIS BUS 1 LANDING ALTITUDE FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 1 MINIMUM DECENT ALTITUDE FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 2 DECISION HEIGHT FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 2 DISCRETE WORD 1 FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 2 DISCRETE WORD 2 LEFT FAULT	34-46 TASK 845

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GROUND PROX	EFIS BUS 2 DISCRETE WORD 2 RIGHT FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 2 INACTIVE	34-46 TASK 826
GROUND PROX	EFIS BUS 2 LANDING ALTITUDE FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 2 MINIMUM DECENT ALTITUDE FAULT	34-46 TASK 845
GROUND PROX	ENVELOPE MODULATION DATABASE FAILED	34-46 TASK 854
GROUND PROX	EXCESSIVE WATCHDOG TIMEOUTS FAILURE	34-46 TASK 854
GROUND PROX	FLAP SWITCH FAULT	34-46 TASK 838
GROUND PROX	FLASH FILE SYSTEM WRITE FAILED	34-46 TASK 854
GROUND PROX	FMC BUS 1 INACTIVE	34-46 TASK 828
GROUND PROX	FMC BUS 1 LATITUDE FAULT	34-46 TASK 841
GROUND PROX	FMC BUS 1 LONGITUDE FAULT	34-46 TASK 841
GROUND PROX	FMC BUS 1 MAGNETIC TRACK FAULT	34-46 TASK 841
GROUND PROX	FMC BUS 1 RNP FAULT	34-46 TASK 841
GROUND PROX	GEAR SWITCH FAULT	34-46 TASK 837
GROUND PROX	GLIDESLOPE CANCEL INVALID	34-46 TASK 848
GROUND PROX	GPS BUS 1 ALTITUDE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 DATE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 GROUND SPEED FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 HDOP FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 HFOM FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 HORIZONTAL INTEGRITY LIMIT FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 INACTIVE	34-46 TASK 830
GROUND PROX	GPS BUS 1 LATITUDE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 LATITUDE FINE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 LONGITUDE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 LONGITUDE FINE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 SENSOR STATUS FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 TRUE TRACK FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 UTC FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 VDOP FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 VERTICAL VELOCITY FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 VFOM FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 ALTITUDE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 DATE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 GROUND SPEED FAULT	34-46 TASK 842

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GROUND PROX	GPS BUS 2 HDOP FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 HFOM FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 HORIZONTAL INTEGRITY LIMIT FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 INACTIVE	34-46 TASK 830
GROUND PROX	GPS BUS 2 LATITUDE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 LATITUDE FINE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 LONGITUDE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 LONGITUDE FINE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 SENSOR STATUS FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 TRUE TRACK FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 UTC FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 VDOP FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 VERTICAL VELOCITY FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 VFOM FAULT	34-46 TASK 842
GROUND PROX	ILS BUS 1 GLIDESLOPE FAULT	34-46 TASK 842
GROUND PROX	ILS BUS 1 INACTIVE	34-46 TASK 829
GROUND PROX	ILS BUS 1 LOCALIZER FAULT	34-46 TASK 842
GROUND PROX	ILS BUS 2 GLIDESLOPE FAULT	34-46 TASK 842
GROUND PROX	ILS BUS 2 INACTIVE	34-46 TASK 829
GROUND PROX	IRS BUS 1 ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 GROUND SPEED FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 INACTIVE	34-46 TASK 824
GROUND PROX	IRS BUS 1 INERTIAL VERTICAL ACCELERATION FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 LATITUDE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 LONGITUDE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 LONGITUDINAL ACCELERATION FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 MAGNETIC TRACK FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 MODE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 NORMAL ACCELERATION FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 PITCH ANGLE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 PITCH RATE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 ROLL ANGLE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 TRUE HEADING FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 TRUE TRACK FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 VERTICAL SPEED FAULT	34-46 TASK 840

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GROUND PROX	IRS BUS 2 ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 GROUND SPEED FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 INACTIVE	34-46 TASK 824
GROUND PROX	IRS BUS 2 INERTIAL VERTICAL ACCELERATION FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 LATITUDE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 LONGITUDE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 LONGITUDINAL ACCELERATION FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 MAGNETIC TRACK FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 MODE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 NORMAL ACCELERATION FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 PITCH ANGLE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 PITCH RATE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 ROLL ANGLE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 TRUE HEADING FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 TRUE TRACK FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 VERTICAL SPEED FAULT	34-46 TASK 840
GROUND PROX	MCP BUS INACTIVE	34-46 TASK 833
GROUND PROX	MCP BUS SELECTED COURSE FAULT	34-46 TASK 846
GROUND PROX	NVM FAILED	34-46 TASK 854
GROUND PROX	NVM RAM FAILED	34-46 TASK 854
GROUND PROX	PROGRAM PIN 11 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN 12 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN 14 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN 15 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN 16 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN 17 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN 9 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN PARITY ERROR	34-46 TASK 855
GROUND PROX	PROGRAM PIN READ ERROR	34-46 TASK 855
GROUND PROX	RADIO ALTIMETER BUS 1 INACTIVE	34-46 TASK 832
GROUND PROX	RADIO ALTIMETER BUS 1 RADIO ALTITUDE FAULT	34-46 TASK 847
GROUND PROX	RADIO ALTIMETER BUS 2 INACTIVE	34-46 TASK 832
GROUND PROX	RADIO ALTIMETER BUS 2 RADIO ALTITUDE FAULT	34-46 TASK 847
GROUND PROX	RAM FAILED	34-46 TASK 854
GROUND PROX	ROM FAILED	34-46 TASK 854

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LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
GROUND PROX	SELF TEST INVALID	34-46 TASK 850
GROUND PROX	SMYD BUS 1 CORRECTED ANGLE OF ATTACK FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 1 FLAP ANGLE FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 1 INACTIVE	34-46 TASK 827
GROUND PROX	SMYD BUS 1 INDICATED ANGLE OF ATTACK FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 1 MINIMUM OPERATING SPEED FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 1 STICK SHAKER ANGLE OF ATTACK FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 2 CORRECTED ANGLE OF ATTACK FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 2 FLAP ANGLE FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 2 INACTIVE	34-46 TASK 827
GROUND PROX	SMYD BUS 2 INDICATED ANGLE OF ATTACK FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 2 MINIMUM OPERATING SPEED FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 2 STICK SHAKER ANGLE OF ATTACK FAULT	34-46 TASK 843
GROUND PROX	SOFTWARE CRC FAILED	34-46 TASK 854
GROUND PROX	SUPPORT TASK FAILED	34-46 TASK 854
GROUND PROX	SYSTEM OR MODE TASK FAILED	34-46 TASK 854
GROUND PROX	TERRAIN DATABASE FAILED	34-46 TASK 854
GROUND PROX	TERRAIN INHIBIT INVALID	34-46 TASK 851
GROUND PROX	TERRAIN RELAY 1 FAULT	34-46 TASK 852
GROUND PROX	TERRAIN RELAY 2 FAULT	34-46 TASK 852
GROUND PROX	VOICE GENERATOR FAILED	34-46 TASK 854
GROUND PROX	WATCHDOG TIMER TEST FAILED	34-46 TASK 854
GROUND PROX	WEATHER RADAR HAZARD BUS 1 INACTIVE	34-46 TASK 834
GROUND PROX	WEATHER RADAR HAZARD BUS 1 STATUS WORD FAULT	34-46 TASK 844
MMR	CONTROL FAIL	34-31 TASK 813
MMR	LRU STATUS	34-31 TASK 812
RADIO ALTIMTR	ANT RX	34-33 TASK 808
RADIO ALTIMTR	ANT TX	34-33 TASK 807
RADIO ALTIMTR	R/T UNIT	34-33 TASK 806
TCAS COMPUTER	BOT ANT	34-45 TASK 804
TCAS COMPUTER	RA DISP	34-45 TASK 808
TCAS COMPUTER	RAD ALT	34-45 TASK 807
TCAS COMPUTER	TCAS FAIL	34-45 TASK 802
TCAS COMPUTER	TOP ANT	34-45 TASK 803
TCAS COMPUTER	X PNDR	34-45 TASK 811

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TCAS COMPUTER	XPDR BUS	34-45 TASK 811
VOR/MKR RCVR	CONTROL FAIL	34-51 TASK 812
VOR/MKR RCVR	LRU STATUS	34-51 TASK 811
WEATHER RADAR	ANT	34-43 TASK 803
WEATHER RADAR	CON	34-43 TASK 804
WEATHER RADAR	COOLING FAULT	34-43 TASK 805
WEATHER RADAR	No map unreg 28 volts	34-43 TASK 802
WEATHER RADAR	RT	34-43 TASK 802
WEATHER RADAR	WEAK	34-43 TASK 802
WEATHER RADAR	tilt code +1	34-43 TASK 806
WEATHER RADAR	tilt code +2	34-43 TASK 807
WEATHER RADAR	tilt code +3	34-43 TASK 806
WEATHER RADAR	tilt code +4	34-43 TASK 816
WEATHER RADAR	tilt code -1	34-43 TASK 806
WEATHER RADAR	tilt code -2	34-43 TASK 807
WEATHER RADAR	tilt code -3	34-43 TASK 806
WEATHER RADAR	tilt code -4	34-43 TASK 816
WEATHER RADAR	tilt code -5	34-43 TASK 817
WEATHER RADAR	tilt code -6	34-43 TASK 818
WEATHER RADAR	tilt code -7	34-43 TASK 819
WEATHER RADAR	tilt code -8	34-43 TASK 821

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801. Mach Airspeed Warning System - Fault Isolation

A. Description

- (1) The Mach Airspeed Warning System failed to sound when the Test switch is pressed.

B. Possible Causes

- (1) Aural Warning Unit Module, M315.
- (2) Mach Airspeed Warning Module, P5-19.
- (3) Air Data Inertial Reference Unit, M1749 (Left) or M1752 (Right).
- (4) ADIRU Pitot Pressure Air Data Module, M1750 (Left) or M1753 (Right).
- (5) ADIRU Static Pressure Air Data Module, M1751(Left) or M1754(Right).
- (6) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00170	MACH WARN SYS-1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00549	MACH WARN SYS -2

D. Related Data

- (1) (SSM 34-16-11).
- (2) (SSM 34-16-21).
- (3) (WDM 34-16-11).
- (4) (WDM 34-16-21).

E. Initial Evaluation

- (1) Make sure that no impact pressure (<1.45mb) is applied to the applicable pitot probe.
- (2) Do this task: Takeoff Warning (TOW) BITE Test, 31-51 TASK 801.
- (3) On the P5 panel push the applicable MACH AIRSPEED WARNING TEST switch.
- (4) If the Mach airspeed warning does not sound, then do the Fault Isolation Procedure below.
- (5) If the Mach airspeed warning does sound, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Replace the Flight Recorder/Mach Airspeed Warning Module.

These are the tasks:

Flight Recorder/Mach Airspeed Warning Test Module Removal, AMM TASK 31-31-12-000-801,

Flight Recorder/Mach Airspeed Warning Test Module Installation, AMM
TASK 31-31-12-400-801.

- (a) On the P5 panel push the applicable MACH AIRSPEED WARNING TEST switch.
 - 1) If the Mach airspeed warning does sound, then you corrected the fault.
 - 2) If the Mach airspeed warning does not sound, then continue.

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- (2) Do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) On the P5 panel push the applicable MACH AIRSPEED WARNING TEST switch.
 - 1) If the Mach airspeed warning does sound, then you corrected the fault.
 - 2) If the Mach airspeed warning does not sound, then continue.
- (3) For the applicable Mach Airspeed Warning System, do this check of the wiring:
 - (a) Remove the Flight Recorder/Mach Airspeed Warning Test Module. To remove it, do this task: Flight Recorder/Mach Airspeed Warning Test Module Removal, AMM TASK 31-31-12-000-801.
 - (b) Remove the Aural Warning Module, M315. To remove it, do this task: Aural Warning Module Removal, AMM TASK 31-51-04-000-801.
 - (c) Do a check for an open circuit between these pins:

	MAS CONNECTOR	AURAL WARN CONNECTOR
MAS 1	D483 pin 16	D1172 pin 2
MAS 2	D483 pin 6	D940 pin 10

- (d) Repair the wiring.
- (e) Re-install the Flight Recorder/Mach Airspeed Warning Test Module. To install it, do this task: Flight Recorder/Mach Airspeed Warning Test Module Installation, AMM TASK 31-31-12-400-801.
- (f) Re-install the Aural Warning Module. To install it, do this task: Aural Warning Module Installation, AMM TASK 31-51-04-400-801.

————— **END OF TASK** —————

802. Mach Airspeed Indicator Airspeed Bugs Do Not Show - Fault Isolation

A. Description

- (1) This task is for these observed faults:
 - (a) V1 bug does not show on the Mach Airspeed Indicator (MASI).
 - (b) VR bug does not show on the MASI.
- NOTE: The fault isolation procedure is the same for either the VR bug or the V1 bug.

B. Possible Causes

- (1) SPD REF switch on the engine control module, P2-2.
- (2) No data from the EFIS control panels to the DEUs.

C. Related Data

- (1) (WDM 31-62-13).
- (2) (WDM 31-62-23).

D. Initial Evaluation

- (1) Do these steps to prepare for initial evaluation and fault isolation:
 - (a) Set the outer knob on the SPD REF switch on the engine control module to V1.

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- (b) Turn the inner knob on the SPD REF switch on the engine control module clockwise to enter a V1 bug speed.
 - 1) Make sure the V1 bug shows on the MASI.
 - 2) Make sure the V1 digits on the MASI show.
- (2) If the V1 bug does not show on the MASI, then do the Fault Isolation Procedure below.
- (3) If the V1 bug shows on the MASI, then there was an intermittent fault.

E. Fault Isolation Procedure

NOTE: You must do the steps to prepare for fault isolation that are in the Initial Evaluation before you can do these steps.

- (1) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If the CDS BITE test shows an EFIS data fault, then go to the FIM task for the applicable CDS maintenance message to correct the fault.
 - 1) If the V1 bug shows on the MASI, then you corrected the fault.
 - 2) If the V1 bug does not show on the MASI, then continue.
 - (b) If the CDS BITE test does not show an EFIS data fault, then continue.
- (2) Replace the bent pins 10 and 11 of Speed Reference switch connector (D333), (WDM 31-62-23).
 - (a) If the V1 bug shows on the MASI, then you corrected the fault.
 - (b) If the V1 bug does not show on the MASI, then continue.
- (3) Replace the engine control module, P2-2.
 - (a) If the V1 bug shows on the MASI, then you corrected the fault.

———— **END OF TASK** ————

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801. Integrated Standby Flight Display BITE Procedure

A. General

- (1) In this task, you do the BITE procedure for the integrated standby flight display (ISFD) system.
- (2) The integrated standby flight display is installed in the P2 center instrument panel.
- (3) Switches used for the self test are on the front panel of the integrated standby flight display.
- (4) Current faults will show any internal faults that are active for the integrated standby flight display.

B. BITE Procedure

- (1) Do these steps to find any current internal faults for the integrated standby flight display:

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- (a) Push the + select key next to <TESTS.
 - (b) Push the select key next to <FUNCTIONAL TEST (110s).
- NOTE: The TEST screen will display IN PROGRESS 110s.

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- (c) Use the BARO knob to select FUNCTIONAL TESTS on the maintenance page.
 - 1) To move the menu selection box, turn the knob in either direction.
 - 2) To select, press the knob.

NOTE: The TEST screen will display IN PROGRESS 110s.

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- (d) If the TEST result displays OK, there are no internal faults for the integrated standby flight display.
- (e) If the TEST result displays an internal fault message, replace the integrated standby flight display. These are the tasks:
 - Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801
 - Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801

————— **END OF TASK** —————

802. Procedure To Be Determined - Fault Isolation

A. Fault Isolation Procedure

- (1) At this time the FIM does not have a procedure for this fault. The FIM will contain a procedure for this fault in the future.

————— **END OF TASK** —————

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801. ADIRS BITE Procedure

A. General

- (1) You do the Air Data Inertial Reference System (ADIRS) fault retrieving from the Control Display Unit (CDU). There are two CDUs on the Forward Electronic Panel in the Flight Compartment.
- (2) Do one of these items on the ADIRS L BITE or ADIRS R BITE main menu to retrieve the faults:
 - (a) CURRENT STATUS.
 - (b) INFLIGHT FAULTS.
- (3) CURRENT STATUS
 - (a) The CURRENT STATUS Display shows maintenance messages that are currently active. A maintenance message identifies a specific failure which is found by the ADIRS. The maintenance messages are in English text and have a seven digit number.
NOTE: The CURRENT STATUS messages can be clear on ground.
- (4) INFLIGHT FAULTS
 - (a) The INFLIGHT FAULTS Display shows the flight legs during which faults occurred. The ADIRS can display the fault data for LEG 01 through LEG 09. The flight legs are shown with the flight leg that had the most current fault at the top of the first page. Only the flight legs during which faults occurred will show. You can use the PREV PAGE and NEXT PAGE Keys to see all the legs. The takeoff time, the takeoff date, and the number of faults in the leg will show under each leg.
 - (b) When you push the Line Select Key (LSK) next to the prompt for one of the flight legs, you will see this data for each fault in the flight leg:
 - 1) A maintenance message number and the message text
 - 2) The date that the fault occurred
 - 3) The time that the fault occurred
 - 4) The altitude when the fault occurred
 - 5) The flight number.
NOTE: The INFLIGHT FAULTS message cannot be clear on ground.

B. BITE Procedure

- (1) Set the mode select switches, on the Mode Select Unit (MSU), to the ALIGN position.
 - (a) Make sure that the ALIGN lights, on the MSU, are on.
- (2) Do the BITE procedure for the ADIRS (Figure 201):
 - (a) If you are not at one of the ADIRS BITE TEST Displays, then do these steps:
 - 1) Push the INIT REF Function Key.
 - 2) If the POS INIT Display shows, then push the LSK next to the INDEX prompt.
NOTE: This makes the INIT/REF INDEX show.
 - 3) Push the LSK next to the MAINT prompt.
NOTE: This will bring you to the MAINT BITE INDEX.
 - (b) From the MAINT BITE INDEX, push the LSK next to the ADIRS prompt.
 - (c) Push the LSK next to the applicable ADIRS L BITE or ADIRS R BITE prompt.
 - (d) Do these steps to look for maintenance message in CURRENT STATUS:

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- 1) Push the LSK next to the CURRENT STATUS prompt.

NOTE: If there are active faults detected by the Air Data Inertial Reference Unit (ADIRU), you will see a maintenance message number and the maintenance message text.

- (e) If there are any maintenance messages, then refer to the table at the end of this task to find the Fault Isolation Task for the applicable maintenance message.

- (3) If there are no maintenance message in CURRENT STATUS for the Left ADIRU and Right ADIRU, then do these steps to look for maintenance message in INFLIGHT FAULTS:

- (a) Push the LSK next to the INDEX prompt.
(b) Push the LSK next to the INFLIGHT FAULTS prompt.
(c) Push the LSK next to the prompt for the flight leg (LEG) during which the fault occurred.

NOTE: The most recent flight leg is LEG 01.

NOTE: INFLIGHT FAULTS cannot be cleared on ground.

- (d) If there are maintenance messages, then refer to the table at the end of this task to find the Fault Isolation Task for the applicable maintenance messages.

- (e) Push the LSK next to the INDEX prompt two times to return to the ADIRS BITE main menu.

- (4) If the ADIRS maintenance code 05 shows on the CDU, then do this task: ADIRS Maintenance Code 05 - Fault Isolation, 34-21 TASK 832.

- (5) If the ADIRS maintenance code 06 shows on the CDU, then do this task: ADIRS Maintenance Code 06 - Fault Isolation, 34-21 TASK 833.

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ADIRS	34-21001 ISDU FAIL	34-21 TASK 802
ADIRS	34-21002 IR FAILURE	34-21 TASK 803
ADIRS	34-21003 EXCESSIVE MOTION	34-21 TASK 804
ADIRS	34-21004 ALIGN FAULT	34-21 TASK 805
ADIRS	34-21007 ADR DATA INVLD	34-21 TASK 840
ADIRS	34-21008 ENTER PPOS	34-21 TASK 807
ADIRS	34-21009 ENTER HEADING	34-21 TASK 808
ADIRS	34-21010 ISDU POWER LOSS	34-21 TASK 809
ADIRS	34-21018 NO ADR DATA	34-21 TASK 841
ADIRS	34-21019 IR PROG PIN INVLD	34-21 TASK 811
ADIRS	34-21020 ADR FAIL	34-21 TASK 839
ADIRS	34-21021 ADR PROG PIN INVLD	34-21 TASK 812
ADIRS	34-21022 TAT PROBE SIGNAL FAIL	34-21 TASK 813
ADIRS	34-21023 AOA SIGNAL FAIL	34-21 TASK 814
ADIRS	34-21024 NO AOA REF SIGNAL	34-21 TASK 815
ADIRS	34-21027 NO PITOT ADM DATA	34-21 TASK 816
ADIRS	34-21028 NO STATIC ADM DATA	34-21 TASK 817

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LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ADIRS	34-21029 NO BARO 1 DATA	34-21 TASK 818
ADIRS	34-21030 NO BARO 2 DATA	34-21 TASK 819
ADIRS	34-21031 NO IR DATA	34-21 TASK 810
ADIRS	34-21032 PITOT ADM DATA INVLD	34-21 TASK 820
ADIRS	34-21033 STATIC ADM DATA INVLD	34-21 TASK 821
ADIRS	34-21034 BARO 1 DATA INVLD	34-21 TASK 822
ADIRS	34-21035 BARO 2 DATA INVLD	34-21 TASK 823
ADIRS	34-21037 IR DATA INVLD	34-21 TASK 806
ADIRS	34-21038 AIR/GND LOGIC INVLD	34-21 TASK 824
ADIRS	34-21039 ADR PIN PAR TST FAIL	34-21 TASK 843
ADIRS	34-21040 AIRFRAME ID INVLD	34-21 TASK 844
ADIRS	34-21041 NO ADR DATA	34-21 TASK 845
ADIRS	34-21042 VMO/MMO DISCRETE INVLD	34-21 TASK 846
ADIRS	34-21043 BARO ASGMT INVLD	34-21 TASK 847
ADIRS	34-21044 SENSOR SRC SEL INVLD	34-21 TASK 848
ADIRS	34-21045 BARO 1 REFERENCE FAIL	34-21 TASK 849
ADIRS	34-21046 AOA 1 REFERENCE FAIL	34-21 TASK 850
ADIRS	34-21047 BARO 2 REFERENCE FAIL	34-21 TASK 851
ADIRS	34-21048 AOA 2 REFERENCE FAIL	34-21 TASK 852

———— **END OF TASK** ————

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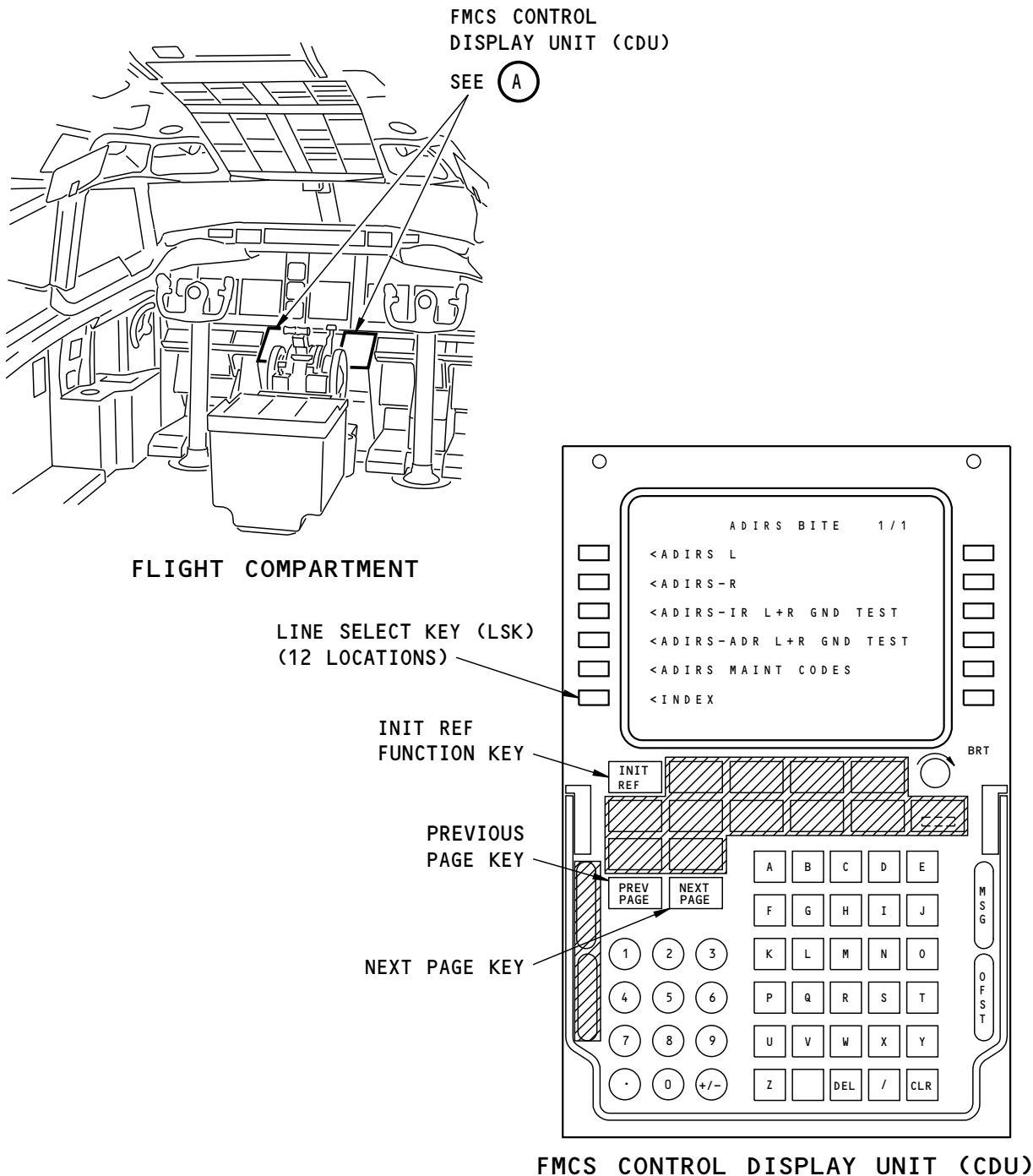
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FMCS CONTROL DISPLAY UNIT (CDU)

(A)

G80229 S0006743933_V1

ADIRS BITE Main Menu
Figure 201/34-21-00-990-803

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802. ISDU FAIL - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21001 ISDU FAIL
- (2) The maintenance message is identical for the left and right ADIRS. The left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) The Inertial System Display Unit (ISDU) supplies both ADIRUs with test discrete and present position data. The ADIRUs supply IR data, ADR data, and fault data to the ISDU.
- (4) This message shows when the ISDU fails to provide data to the ADIRUs or when the ISDU's BITE monitoring reports a fault to the ADIRUs.

B. Possible Causes

- (1) ISDU, P5-70
- (2) ADIRU-1 (2), M1749 (M1752)
- (3) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) (SSM 34-21-11)
- (2) (WDM 34-21-11)

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU, then do the Fault Isolation Procedure below.

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F. Fault Isolation Procedure

- (1) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, AMM TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, AMM TASK 34-21-00-820-801.
 - (a) Do the Repair Confirmation at the end of this task.
- (2) Replace the ISDU. These are the tasks:
 - Inertial System Display Unit Removal, AMM TASK 34-21-02-000-801
 - Inertial System Display Unit Installation, AMM TASK 34-21-02-400-801
 - (a) Do a check for the bend pins at the connectors.
 - (b) Do the Repair Confirmation at the end of this task.
- (3) Do this check of the wiring between the applicable ADIRU and the ISDU:
 - (a) Remove the ADIRU. This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Remove the ISDU. This is the task: Inertial System Display Unit Removal, AMM TASK 34-21-02-000-801.
 - (c) For the left ADIRU-1, M1749 maintenance message, do a wiring check between these pins of connector D3687B for the ADIRU and connector D2169 for the ISDU:

ADIRU, M1749

D3687B

pin C5 pin 24A

pin C6 pin 25B

ISDU, P5-70

D2169

- (d) For the right ADIRU-2, M1752 maintenance message, do a wiring check between these pins of connector D3693B for the ADIRU and connector D2183 for the ISDU:

ADIRU, M1752

D3693B

pin C5 pin 24A

pin C6 pin 25B

ISDU, P5-70

D2183

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADIRU. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 3) Re-install the ISDU. This is the task: Inertial System Display Unit Installation, AMM TASK 34-21-02-400-801.
 - 4) Do the Repair Confirmation at the end of this task.
- (f) If you do not find a problem with the wiring, then do this step and continue.
 - 1) Re-install the ISDU. Do this task: Inertial System Display Unit Installation, AMM TASK 34-21-02-400-801.
- (4) Replace the ADIRU. These are the tasks:
 - Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.

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G. Repair Confirmation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU, then you corrected the problem.
 - (b) If the maintenance message shows on the CDU, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

803. IR Failure - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21002 IR FAIL
- (2) The maintenance message is identical for the left and right ADIRS. The left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) The IR function calculates inertial altitude, present position, groundspeed, heading and attitude etc.
- (4) The message 34-21002 shows when the ADIRU detects a non-critical or critical fault of the IR. The IR fault also causes the status code 02 to show on the ISDU and the FAULT light on the MSU to come ON.
- (5) The message 34-21002 also shows when the ADIRU's post alignment computed latitude is different than the manually entered latitude. Multiple incorrect manual entries of latitude will cause this maintenance message to show.

B. Possible Causes

- (1) Multiple entries of an incorrect latitude.
- (2) ADIRU-1,(2) M1749, (M1752)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

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D. Related Data

- (1) SSM 34-21-11
- (2) WDM 34-21-11.

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (2) If other maintenance messages are shown on the CDU along with the 34-21002 message, then do the corrective tasks to remove those maintenance messages first.
 - (a) After you clear the correlated maintenance messages, if the maintenance message 34-21002 does not show on the CDU, the status code 02 does not show on the ISDU, and the FAULT light on the MSU goes OFF, then you corrected the problem.
 - (b) After you clear the correlated maintenance messages, if the maintenance message 34-21002 continues to show on the CDU, the status code 02 shows on the ISDU, and the FAULT light on the CDU stays ON, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Make sure that the airplane's position and the latitude entry is correct. Use Global Positioning System (GPS) calculated position if available.
 - (a) If the manual position entry of latitude was incorrect, the maintenance message 34-21002 can be cleared by repeating the alignment.
 - 1) Set the MSU to OFF and wait for a minimum of 30 seconds.
 - 2) Repeat the full alignment. This is the task: Air Data Inertial Reference System - Alignment from the ISDU, AMM TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, AMM TASK 34-21-00-820-801.
 - (b) If the maintenance message 34-21002 continues to show on the CDU, the status code 02 shows on the ISDU, and the FAULT light on the MSU stays ON, then continue.
- (2) Do this task: IR Radial Position Error Check, AMM TASK 34-21-00-200-801.
 - (a) Do the Repair Confirmation at the end of this task.
- (3) Do this task: Inertial Reference Residual Groundspeed Error Check, AMM TASK 34-21-00-200-802.
 - (a) Do the Repair Confirmation at the end of this task.
- (4) Replace the applicable ADIRU. These are the tasks:
 - Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU, the status code does not show on the ISDU, and the FAULT light on the MSU does not come ON, then you corrected the problem.
 - (b) If the maintenance message shows on the CDU, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

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804. Excessive Motion During Alignment - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21003 EXCESSIVE MOTION
- (2) The maintenance message is identical for the left and right ADIRS. The left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) This message shows when the ADIRU detects excessive airplane movement during the alignment mode and suspends the alignment process. After the airplane stops moving for a minimum of 30 seconds, the ADIRU will automatically restart a full alignment again and reset the alignment time count. The message 34-21003 will only show while excessive motion is being experienced.
- (4) This condition causes the IRS MOTION message to show on all pages of the CDU and the status code 03 to show on the ISDU.

B. Possible Cause

- (1) Airplane moves during the alignment

NOTE: Airplane movement can be caused by the loading and unloading of cargo and passengers or servicing activities. If this message shows, wait until these activities end to perform the alignment.
- (2) Cross wind or high wind gusts

NOTE: If high wind condition occurs, turn the aircraft nose into the wind prior to alignment or have the aircraft aligned in the hangar or in a sheltered area before you tow the aircraft to the flight line. A lighter airplane will move more in wind than a fully loaded airplane. Make sure that the airplane's brakes are set firmly and wait until after the airplane has been fully loaded to perform the alignment.

C. Initial Evaluation

- (1) To clear the maintenance message, make sure the airplane is not moving while the ADIRU is in the alignment mode. No maintenance action is required.

NOTE: Approximately 30 seconds after the airplane stops moving, the ADIRU will automatically start a new full alignment and reset the alignment time count.

If present position was entered before the light flashed, it is not necessary to enter it again.

————— **END OF TASK** —————

805. Align Fault - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21004 ALIGN FAULT
- (2) The maintenance message is identical for the left and right ADIRS. The left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.

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- (3) The ADIRU keeps a record of its last position. You must enter the present position data during the alignment mode. The ADIRU will not go into NAV mode if present position has not been entered by the end of the alignment period. The ADIRU will continue to prompt for a present position and the ALIGN FAULT will not clear.
- (4) This message shows when you enter position data that is more than 1 degree different than the recorded latitude or 1 degree different than the recorded longitude. This message will also show when the ADIRU's post alignment computed latitude is different than the manually entered latitude.
- (5) This condition causes the ALIGN light on the MSU to flash, the status code 04 to show on the ISDU and ENTER IRS POSITION message to show on the CDU.

B. Possible Cause

- (1) The entered present position is more than ± 1 degree different than the present position stored in memory.

NOTE: This can occur when an ADIRU is replaced (if the ADIRU was turned off at a different location) or the airplane is moved after the ADIRU powered down. It can also occur if ADIRU power is removed before the ADIRU had time to complete a full power down sequence when it stores the last known valid position.

NOTE: If this condition occurs, the ALIGN light on the Mode Select Unit (MSU) will flash. Confirm the location of the airplane and enter the present position again to align the ADIRU.

NOTE: You might need to enter the data three times.

- (2) The entered latitude fails the ADIRU's post alignment performance test.

NOTE: If this condition occurs, the ALIGN light on the MSU will flash and the ADIRU will again request a manual entry of position. If the same position that was entered initially is entered again, the ADIRU will fail the post alignment performance test and fault itself. Make sure that the position entered initially was accurate before entering it again. If it was not accurate then enter the accurate position. If the new position entry passes the ADIRU's post alignment comparison test, the ADIRU will complete the alignment and be ready for NAV mode.

- (3) ADIRU-1, (2) M1749, (M1752).

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

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D. Related Data

- (1) WDM 34-61-14
- (2) WDM 34-21-12.

E. Initial Evaluation

- (1) Confirm the airplane's position. Use the CDU or the ISDU to enter the correct present position again. The ADIRU must have two identical and valid positions for the alignment. It can be:
 - (a) The ADIRU's stored position plus an identical manually entered position, or
 - (b) Two identical positions entered sequentially.
 - (c) Do the applicable ADIRS BITE procedure (34-21 TASK 801).
 - 1) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the problem.
 - 2) If the maintenance message shows on the CDU and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do these steps from the CDU to enter the present position (34-21 TASK SUPPORT Figure 301):

NOTE: The present position can also be entered from the ISDU.

- (a) Set the mode select switches on the Inertial Reference System (IRS) MSU to the OFF position.

- 1) Make sure that the ALIGN lights are off.

NOTE: It can take up to 30 seconds for the ALIGN lights to turn off.

- (b) Set the mode select switches on the IRS MSU to the NAV position.
 - (c) Make sure that the ON DC lights on the IRS MSU come ON for a short time.
 - (d) Make sure that the ALIGN lights on the IRS MSU come ON.

NOTE: It is acceptable for the ALIGN lights to come ON before or after the ON DC lights.

- (e) Do these steps to enter the latitude and longitude from a CDU:

NOTE: CDU data lines that permit a selection are identified with a caret (or >). The CDU has 12 line-select-keys (LSK). Six keys are on each side of the display. LSK 1L thru 6L are on the left side, and LSK 1R thru 6R are on the right side.

- 1) Push the INIT REF key on the CDU.
 - 2) Push the LSK 6L adjacent to the < INDEX prompt on the CDU.
 - a) Make sure that the CDU shows the INIT/REF INDEX 1/1 page.
 - 3) Push the LSK 2L adjacent to the < POS prompt on the CDU.
 - a) Make sure that the CDU shows the POS INIT 1/3 page.
 - 4) Put the latitude and longitude data in the scratch pad line of the CDU.

NOTE: Do not put a space between the latitude and longitude. The format of the latitude and longitude data is as follows:

Latitude and longitude: XDDMM.MYDDMM.M

- Where:
- X is N or S for latitude

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- Y is E or W for longitude
 - D is the number of degrees
 - M is the number of minutes
- 5) Push the LSK 4R adjacent to the SET IRS POS > prompt on the CDU.
 - a) Make sure that the CDU shows the latitude and longitude below the SET IRS POS line.
 - 6) Do the Repair Confirmation at the end of this task.
- (2) Confirm the airplane's position. Use the CDU or ISDU to enter the present position again.
 - (a) Do the Repair Confirmation at the end of this task.
 - (3) If the above steps are followed correctly and the alignment is still not able to be completed, then replace the applicable ADIRU. These are the tasks:
 - Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do the applicable ADIRU BITE procedure (34-21 TASK 801).
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message shows on the CDU and the status code shows on the ISDU then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

806. IR Data Invalid - Fault Isolation

A. Description

- (1) This task is for these maintenance message:
 - (a) 34-21037 IR DATA INVLD
- (2) This message shows when the ADR receives invalid data from the IR Section of the ADIRU.
- (3) This message also causes the Status Code 37 to show on the ISDU.
- (4) The maintenance message is the same for the Left and Right ADIRS.
 - (a) The Left ADIRS maintenance message is shown on the ADIRS L BITE Page of the CDU.
 - (b) The Right ADIRS maintenance message is shown on the ADIRS R BITE Page of the CDU.
- (5) Each ADIRU supplies Inertial Reference (IR) Data to many systems and components.
 - (a) IR Data is on ARINC 429 Data Buses.
 - (b) The data on each IR Bus is the same.
 - (c) One Data Bus goes from the IR Section of the ADIRU to the ADR Section.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) WDM 34-21
(2) SSM 34-21

E. Initial Evaluation

- (1) Make sure that the applicable ADIRS is aligned and is in the NAV Mode.
- (2) For the applicable ADIRS , do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (a) If other maintenance messages show on the CDU along with the maintenance message 34-21037, then do the applicable Fault Isolation Procedures to remove those maintenance messages first.
- (b) After you clear the related faults, if the maintenance message 34-21037 does not show on the CDU, and the Status Code 37 does not show on the ISDU, then you corrected the problem.
- (c) After you clear the related faults, if the maintenance message 34-21037 continues to show on the CDU, and the Status Code 37 shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this task: IR Radial Position Error Check, AMM TASK 34-21-00-200-801.
- (a) Do the Repair Confirmation at the end of this task.
- (2) Do this task: Inertial Reference Residual Groundspeed Error Check, AMM TASK 34-21-00-200-802.
- (a) Do the Repair Confirmation at the end of this task.
- (3) Replace the applicable Left (Right) ADIRU, M1749 (M1752). These are the tasks:
- Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
- (a) Do the Repair Confirmation at the end of this task.

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G. Repair Confirmation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU, and the Status Code 37 does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message shows on the CDU, and the Status Code 37 shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

807. Enter Present Position - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21008 ENTER PPOS
- (2) The maintenance message is identical for the left and right ADIRS. The left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) A present position must be entered to the ADIRU during the alignment period.
- (4) This message shows if the alignment period ends and present position has not been entered to the ADIRU.
- (5) This condition also causes the ALIGN light on the MSU to flash, the status code 08 to show on the ISDU and ENTER IRS POSITION message to show on CDU.

B. Possible Causes

- (1) The present position was not entered during the alignment period.
- (2) The present position entered was not within 1 degree of the ADIRU stored position.
- (3) The ADIRU calculated latitude during the alignment differs from the manually entered latitude.

C. Initial Evaluation

- (1) To clear this maintenance message, you must enter the present position of the airplane from the CDU or ISDU (34-21 TASK SUPPORT Figure 301). No maintenance action is required.

———— **END OF TASK** ————

808. ADIRS Enter Heading - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21009 ENTER HEADING
- (2) The maintenance message is identical for the Left and Right ADIRS.
 - (a) The Left ADIRS maintenance message is shown on the ADIRS L BITE Page on the CDU.
 - (b) The Right ADIRS maintenance message is shown on the ADIRS R BITE Page on the CDU.
- (3) This message shows when the ADIRU is in the Attitude Mode (ATT) and does not receive the Magnetic Heading Data from CDU or ISDU.
- (4) This condition causes the Status Code 09 to show on the ISDU.

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B. Possible Causes

- (1) Magnetic Heading Data was not entered during the Attitude Mode (ATT).
- (2) MSU Discrete Inputs to the ADIRU are faulty.

C. Related Data

- (1) SSM 34-21
- (2) WDM 34-21

D. Initial Evaluation

- (1) To clear this maintenance message, you must enter the present Magnetic Heading Data from the CDU or ISDU. No maintenance action is required.
- (2) If the MSU Switch position is not in the Attitude Mode (ATT) and this maintenance message is present, then it is possible that the MSU Switch is defective.

E. Fault Isolation Procedure

- (1) Do this check of the wiring between the applicable ADIRU and the MSU.
 - (a) Remove the ADIRU. This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) On the Left ADIRU, examine the MSU Mode Discrete Output pins M1 and M2 at the E5-2 shelf, connector D3687B as follows:
 - 1) Rotate the MSU Mode Switch through the positions shown in the table below.
 - a) Use a Digital Multi Meter (DMM) to test the diode at the MSU Mode Switch.
 - b) Make sure that pins F1 and F2 are open (source impedance of 100 KOhms or more) or grounded through the diode (source impedance of 10 Ohms or less), with respect to common ground pin D2, as shown in the table below.

Switch Position

MSU Switch Position	Pin F1	Pin F2
OFF	OPEN	OPEN
ALIGN	GROUND	OPEN
NAV	GROUND	GROUND
ATT	OPEN	GROUND

- (c) On the Right ADIRU, examine the MSU Mode Discrete Output pins M1 and M2 at the E5-2 shelf, connector D3693B as follows:
 - 1) Rotate the MSU Mode Switch through the positions shown in the table below.
 - a) Use a DMM to test the diode at the MSU Mode Switch.
 - b) Make sure that pins F1 and F2 are open (source impedance of 100 KOhms or more) or grounded through the diode (source impedance of 10 Ohms or less), with respect to common ground pin D2, as shown in the table below.

Switch Position

MSU Switch Position	Pin F1	Pin F2
OFF	OPEN	OPEN
ALIGN	GROUND	OPEN

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Switch Position (Continued)

MSU Switch Position	Pin F1	Pin F2
NAV	GROUND	GROUND
ATT	OPEN	GROUND

- (d) If you find a problem with the MSU Mode Discrete Output pins M1 and M2, replace the MSU. This is the task: IRS Mode Select Unit Installation, AMM TASK 34-21-03-400-801.

END OF TASK

809. ISDU Power Loss - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21010 ISDU POWER LOSS
- (2) The maintenance message is identical for the left and right air data inertial reference systems (ADIRS). The left ADIRS maintenance message is shown on the ADIRS L BITE page on the control display unit (CDU). The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) The inertial system display unit (ISDU) gets 28v dc from the left and the right ADIRU.
- (4) This message shows when the inertial system display unit does not receive 28v dc power signal from ADIRUs.

B. Possible Causes

- (1) ISDU, P5-70
- (2) Wiring problem
- (3) ADIRU, M1749 (left) or M1752 (right)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) (SSM 34-21)
- (2) (WDM 34-21)

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E. Initial Evaluation

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

- (2) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (3) If the maintenance message does not show on the CDU and the ISDU is powered, then you corrected fault.
- (4) If the maintenance message shows on the CDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check for 28v dc power signal:

- (a) Remove the ISDU. To remove it, do this task: Inertial System Display Unit Removal, AMM TASK 34-21-02-000-801.

- (b) For the left ADIRU:

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

- (c) For the right ADIRU:

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

- (d) Do a check for a 28v dc from pin 3 to pin 4 (ground) of the connector D2169.
- (e) Do a check for a 28v dc from pin 3 to pin 4 (ground) of the connector D2183.
- (f) If there is a 28v dc at pin 3 of connector D2169 and D2183, then do these steps:
- 1) Install a new ISDU. To install it, do this task: Inertial System Display Unit Installation, AMM TASK 34-21-02-400-801.
- 2) For the applicable ADIRU, do this task: ADIRS BITE Procedure, 34-21 TASK 801.

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- 3) If the maintenance message does not show on the CDU and the ISDU is powered, then you corrected the fault.
- (g) If there is not a 28v dc at pin 3 of connector D2169 or D2183, then continue.
- (2) Do this check of the wiring between the ADIRUs and the ISDU:
- (a) Remove the ADIRUs. To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
- (b) Remove the ISDU. To remove it, do this task: Inertial System Display Unit Removal, AMM TASK 34-21-02-000-801.
- (c) For the left ADIRU, do a wiring check between these pins of connector D3687B for the ADIRU and connector D2169 for the ISDU:
- | D3687B | D2169 |
|------------------|--------------|
| pin D1 | pin 3 |
| pin D2 | pin 4 |
- (d) For the right ADIRU, do a wiring check between these pins of connector D3693B for the ADIRU and connector D2183 for the ISDU:
- | D3693B | D2183 |
|------------------|--------------|
| pin D1 | pin 3 |
| pin D2 | pin 4 |
- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ADIRUs. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 3) Re-install the ISDU. To install it, do this task: Inertial System Display Unit Installation, AMM TASK 34-21-02-400-801.
 - 4) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - 5) If the maintenance message does not show on the CDU and the ISDU is powered, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then do this step and continue:
- 1) Re-install the ISDU. To install it, do this task: Inertial System Display Unit Installation, AMM TASK 34-21-02-400-801.
- (3) Install a new ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (a) If the test in the installation task for the ADIRU is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

810. No IR Data - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
- (a) 34-21031 NO IR DATA
- (2) The maintenance message is identical for the left and right ADIRS. The left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.

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- (3) The maintenance message 34-21031 shows when the air data reference does not receive data from the inertial reference. This maintenance message can also show when the ADIRU power is applied and the MSU switch is in the OFF position.
- (4) This fault causes the status code 31 to show on the ISDU.

B. Possible Causes

- (1) MSU Switch is in the OFF position
- (2) ADIRU, M1749 (left) or M1752 (right)
- (3) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) SSM 34-21
- (2) WDM 34-21

E. Initial Evaluation

- (1) Make sure that the applicable MSU switch is in the ALIGN or NAV position.
- (2) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (3) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then there was an intermittent fault.
- (4) If the maintenance message shows on the CDU, and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the wiring for the applicable ADIRU:
 - (a) Remove the ADIRU. This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Do a check of the condition of the pins and connector of the applicable ADIRU.
 - (c) For the left ADIRU, M1749, do a wiring check between these pins of connectors:
 - 1) Do a wiring check between these pins of connectors D3687B and D3687A:

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D3687B

pin K11 pin D6
pin K12 pin E6

D3687A

(d) For the right ADIRU, M1752, do a wiring check between these pins of connectors:

- 1) Do a wiring check between these pins of connectors D3693B and D3693A:

D3693B

pin K11 pin D6
pin K12 pin E6

D3693A

(e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
 - 2) Re-install the ADIRU. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 3) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - 4) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the problem.
 - 5) If the maintenance message does show on the CDU, and the status code does show on the ISDU, then continue.
- (2) Replace the applicable ADIRU. These are the tasks:
- Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
- (a) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- 1) If the maintenance message does not show on the CDU, and the status code does not show on the ISDU, then you corrected the fault.

————— **END OF TASK** —————

811. IR Program Pin Invalid - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21019 IR PROG PIN INVLD
- (2) The maintenance message is identical for the left and right ADIRS. The left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) Selected display options and configurations are set by IR program pins. The status of these program pins are monitored by the ADIRU during power up.
- (4) This message shows when the ADIRU detects an invalid program pin configuration of the IR.
- (5) This fault causes the status code 19 to show on the ISDU and the FAULT light on the MSU to come ON.
- (6) This is a critical fault which also causes the status code 02 to show on the ISDU.

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B. Possible Causes

- (1) ADIRU-1 (2), M1749 (M1752)
- (2) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) SSM 34-21
- (2) WDM 34-21

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the wiring of the program pins for the applicable ADIRU (WDM 34-21-11,WDM 34-21-12,WDM 34-21-13,WDM 34-21-21,WDM 34-21-22,WDM 34-21-23,WDM 34-21-24,WDM 34-21-14):

NOTE: Open circuit pins are not shown on the WDMs.

- (a) Remove the ADIRU. This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - 1) Do a check of the condition of the pins and connector of the applicable ADIRU.
- (b) Do a wiring check of these program pins for a ground or an open circuit:
 - 1) For the left ADIRU-1 (M1749), do a check of these pins at connector D3687B. For the right ADIRU-2 (M1752), do a check of these pins at connector D3693B:

Pin No.	Signal
A2	Mounting Position 1
A3	Mounting Position 2

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Pin No.	Signal
A5	IR SDI LSB
A6	IR SDI MSB
C3	GPIRU/IRU select
E7	ADIRU/IRU select
J5	Enhanced alignment mode select
K3	Mag Var model select
K9	Mag Var coverage select

- 2) For the left ADIRU-1 (M1749), do a check of these pins at connector D3687A. For the right ADIRU-2 (M1752), do a check of these pins at connector D3693A:

Pin No.	Signal
1E	A/C IDENT CODE 1/0
1F	A/C IDENT CODE 2/0
1G	A/C IDENT CODE 4/0
1H	A/C IDENT CODE 8/0
1J	A/C IDENT CODE 16/0
4A	A/C IDENT CODE 32/0
4B	A/C IDENT CODE 64/0
1K	A/C IDENT CODE PARITY

- 3) Make sure that the program pins are connected correctly (WDM 34-21).
- 4) If you find a problem with the wiring, then do these steps:
- Repair the wiring.
 - Re-install the ADIRU. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- <1> Do the Repair Confirmation at the end of this task.

- (2) Replace the applicable ADIRU. These are the tasks:

- Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
- Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801

- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- If the maintenance message does not show on the CDU, and the status code does not show on the ISDU, then you corrected the problem.
 - If the maintenance message does show on the CDU, and the status code does show on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

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812. ADR Program Pin Invalid - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21021 ADR PROG PIN INVLD
- (2) The maintenance message is identical for the left and right ADIRS. The left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) Selected display options and configurations are set by ADR program pins. The status of these program pins are monitored by the ADIRU during power up.
- (4) This message shows when the ADIRU detects an invalid program pin configuration of the air data reference.
- (5) This fault causes the status code 21 to show on the ISDU.
- (6) This is a critical fault which also causes the status code 02 to show on the ISDU.

B. Possible Causes

- (1) ADIRU-1 (2), M1749 (M1752)
- (2) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) SSM 34-21
- (2) WDM 34-21

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

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F. Fault Isolation Procedure

- (1) Do this check of the wiring of the program pins for the applicable ADIRU (WDM 34-21-11, WDM 34-21-12, WDM 34-21-13, WDM 34-21-21, WDM 34-21-22, WDM 34-21-23, WDM 34-21-24, WDM 34-21-14):

NOTE: Open circuit pins are not shown on the WDMs.

- (a) Remove the ADIRU. This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
- 1) Do a check of the condition of the pins and connectors of the applicable ADIRU.
- (b) Do a wiring check of the following program pins for a ground or an open circuit:
- 1) For the left ADIRU-1, M1749, do the check of these pins at connector D3687B. For the right ADIRU-2, M1752, do the check of these pins at connector D3693B:

Pin No.	Signal
A5	SDI LSB
A6	SDI MSB

- 2) For the left ADIRU-1, M1749, do the check of these pins at connector D3687A. For the right ADIRU-2, M1752, do the check of these pins at connector D3693A:

Pin No.	Signal
3C	TAT recovery corr. program
7F	Baro. select program #2
14F	ADR program pin parity discrete
7G	Baro. select program #3
8G	Baro. select program #1
2H	SSEC program
2J	AOA correction program
5J	Zero SSEC (AOA) program
1E	A/C IDENT CODE 1/0
1F	A/C IDENT CODE 2/0
1G	A/C IDENT CODE 4/0
1H	A/C IDENT CODE 8/0
1J	A/C IDENT CODE 16/0
4A	A/C IDENT CODE 32/0
4B	A/C IDENT CODE 64/0
1K	A/C IDENT CODE PARITY
7F	BARO SELECT PROG #2
7G	BARO SELECT PROG #3
8G	BARO SELECT PRO #1
3D	VMO/MMO DISCRETE INPUT #4

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Pin No.	Signal
3E	VMO/MMO DISCRETE INPUT #3
3F	VMO/MMO DISCRETE INPUT #2
3G	VMO/MMO DISCRETE INPUT #1
9F	ALT #3 BARO ASSIGN #1 DISC IN
9G	ALT #4 BARO ASSIGN #3 DISC IN
10F	ALT #3 BARO ASSIGN #2 DISC IN
10G	ALT #4 BARO ASSIGN #2 DISC IN
11G	ALT #4 BARO ASSIGN #1 DISC IN

- 3) Make sure that the program pins are connected correctly (WDM 34-21).
- 4) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the ADIRU. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - c) Do the Repair Confirmation at the end of this task.
- (2) Replace the applicable ADIRU. These are the tasks:
 - Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU, and the status code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message does show on the CDU, and the status code does show on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

813. TAT Probe Signal Fail - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21022 TAT PROBE SIGNAL FAIL
- (2) The maintenance message is the same for the left and right ADIRS. The left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.

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- (3) The Total Air Temperature (TAT) probe measures the Outside Air Temperature (OAT). It changes the temperature value to an electrical signal and sends to the ADIRU.

NOTE: For non-aspirated TAT probe, the reported temperature of 210°F (99°C) can occur on the ground when anti-icing heating is applied. Heating occurs when the P5-9 Panel Pitot Heat switch is placed to the ON position or when the engines are on. Aspirated TAT probes have an Air/GND relay to inhibit heating on the ground. The maximum reported temperature of the TAT is 210°F (99°C). The Engine display can show 210°F (99°C) under the above condition. If TAT probe heating occurs prior Flight Management Computer (FMC) OAT entry, it can result with the FMC blanking the OAT Box Prompts on the CDU N1 LIMIT page if the TAT temperature is excessively high. It will prevent an entry into OAT field. When the Probe Heat is no longer applied, after the TAT probe cools, the Box Prompts will return and an OAT entry may be made normally.

- (4) This message shows when the ADIRU receives an invalid signal from the TAT probe.
(5) This fault causes the status code 22 to show on the ISDU.

B. Possible Causes

- (1) TAT probe, M171
(2) Wiring
(3) ADIRU-1 (2), M1749 (M1752)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	2	C00238	HEATERS TEMP PROBE

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) SSM 34-21-12
(2) SSM 30-31-11
(3) SSM 34-21-22
(4) WDM 34-21-12

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- (5) WDM 30-31-11
- (6) WDM 34-21-22

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the TAT probe. These are the tasks:
Total Air Temperature Probe - Removal, AMM TASK 34-21-06-000-801
Total Air Temperature Probe - Installation, AMM TASK 34-21-06-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (2) Do this check of the wiring between the applicable ADIRU and the TAT probe:
 - (a) Remove the ADIRU. This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Remove the TAT probe. This is the task: Total Air Temperature Probe - Removal, AMM TASK 34-21-06-000-801.
 - (c) For the left ADIRU-1, M1749 maintenance message, do a wiring check between these pins of connector D277 for the TAT probe and connector D3687A for the ADIRU:

TAT probe,		ADIRU, M1749	
M171			
D277		D3687A	
pin 3	.....	pin H8	
pin 4	.....	pin J8	

- (d) For the right ADIRU-2, M1752 maintenance message, do a wiring check between these pins of connector D277 for the TAT probe and connector D3693A for the ADIRU:

TAT probe,		ADIRU, M1752	
M171			
D277		D3693A	
pin 5	.....	pin H8	
pin 2	.....	pin J8	

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADIRU. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 3) Re-install the TAT probe. This is the task: Total Air Temperature Probe - Installation, AMM TASK 34-21-06-400-801.
 - 4) Do the Repair Confirmation at the end of this task.
 - (f) If you do not find a problem with the wiring, then do this step and continue:

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- 1) Re-install the TAT probe. This is the task: Total Air Temperature Probe - Installation, AMM TASK 34-21-06-400-801.
- (3) Replace the ADIRU. These are the tasks:
 - Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the fault.
 - (b) If the maintenance message shows on the CDU and the status code shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

814. AOA Signal Fail - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21023 AOA SIGNAL FAIL
- (2) The maintenance message is identical for the left and right air data inertial reference systems (ADIRS). The left ADIRS maintenance message is shown on the ADIRS L BITE page on the control display unit (CDU). The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) The angle of attack (AOA) sensors measure and convert angle of attack to electrical signals. These electrical signals go to the ADIRUs.
- (4) This message shows when the ADIRU receives an invalid signal from the angle of attack (AOA) sensor.
- (5) This fault causes the status code 23 to show on the inertial system display unit (ISDU). This fault will also cause status codes 20 and 07 to show on the ISDU.
- (6) This fault causes the SPD flag to show on the airspeed indicator and the ALT flag to show on the altimeter indicator. An AOA SIGNAL FAULT will also cause maintenance messages 34-21020 ADR FAIL and 34-21007 ADR DATA INVLD. An AOA SIGNAL FAIL causes all ADIRU ADR data to go invalid (FW) except for the maintenance words.

B. Possible Causes

- (1) Left (Right) AOA sensor, T433 (T437)
- (2) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

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CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) SSM 34-21
- (2) WDM 34-21

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (2) If the maintenance message does not show on the CDU, and the status code does not show on the ISDU, then there was an intermittent fault.
- (3) If the maintenance message shows on the CDU and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the applicable AOA sensor. These are the tasks:
 - Angle of Attack Sensor Removal, AMM TASK 34-21-05-000-801
 - Angle of Attack Sensor Installation, AMM TASK 34-21-05-400-801
 - (a) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (b) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the fault.
 - (c) If the maintenance message shows on the CDU and the status code shows on the ISDU, then continue.
- (2) Do this check of the wiring between the applicable ADIRU and the AOA sensor:
 - (a) Remove the ADIRU. This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Remove the AOA sensor. This is the task: Angle of Attack Sensor Removal, AMM TASK 34-21-05-000-801.
 - (c) For the left ADIRU and left AOA sensor:
 - 1) Do a wiring check between these pins of connector D10015 for the AOA sensor and connector D3687A for the ADIRU (WDM 34-21-12):

D10015	D3687A
pin 3	pin J7
pin 4	pin H7
pin 5	pin K7

- 2) Disconnect the connector D41809P from the P18-2 panel.

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- 3) Do a wiring check between these pins of connector D10015 for the AOA sensor and connector D41809P for the ADIRU LEFT EXCITE circuit breaker:

D10015	D41809P
pin 1	pin 4

- 4) Do a wiring check between these pins of connector D10015 for the AOA sensor and the ground terminal GD602-AC:

D10015	GD602-AC
pin 2	GROUND

- 5) Examine the ground terminal GD602-AC for corrosion, correct bonding and torque.

- (d) For the right ADIRU and right AOA sensor:

- 1) Do a wiring check between these pins of connector D10017 for the AOA sensor and connector D3693A for the ADIRU (WDM 34-21-22):

D10017	D3693A
pin 4	pin J7
pin 3	pin H7
pin 5	pin K7

- 2) Disconnect the connector D46065P from the P6-1 panel.

- 3) Do a wiring check between these pins of connector D10017 for the AOA sensor and connector D46065P for the ADIRU RIGHT EXCITE circuit breaker:

D10017	D46065P
pin 1	pin 7

- 4) Do a wiring check between these pins of connector D10017 for the AOA sensor and the ground terminal GD606-AC:

D10017	GD606-AC
pin 2	GROUND

- 5) Examine the ground terminal GD606-AC for corrosion, correct bonding and torque.

- (e) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) For the left (right) ADIRU, re-connect the connector D41809P (D46065P) to the P18-2 (P6-1) panel.
- 3) Re-install the ADIRU. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- 4) Re-install the AOA sensor. This is the task: Angle of Attack Sensor Installation, AMM TASK 34-21-05-400-801.
- 5) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- 6) If the maintenance messages does not show on the CDU and the status code does not show on the ISDU, then you corrected the fault.

- (f) If you do not find a problem with the wiring, then do this step and continue:

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- 1) For the left (right) ADIRU, re-connect the connector D41809P (D46065P) to the P18-2 (P6-1) panel.
- 2) Re-install the AOA sensor. This is the task: Angle of Attack Sensor Installation, AMM TASK 34-21-05-400-801.
 - a) If the test in the installation task for the AOA Sensor is satisfactory, then you corrected the fault.
 - b) If the test in the installation task for the AOA Sensor is unsatisfactory, then continue.
- (3) Install a new ADIRU. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (a) If the test in the installation task for the ADIRU is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

815. No AOA Reference Signal - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21024 NO AOA REF SIGNAL
- (2) The maintenance message is identical for the left and right air data inertial reference systems (ADIRS). The left ADIRS maintenance message is shown on the ADIRS L BITE page on the control display unit (CDU). The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) The 28v ac standby (stby) bus supplies a servo reference voltage to the left ADIRU and to the left angle of attack (AOA) sensor. The 28v ac transfer (xfr) bus 2 supplies servo reference voltage to the right ADIRU and to the right AOA sensor.
- (4) This message shows when the ADIRU does not receive a 28v ac reference signal.
- (5) This fault causes the status code 24 to show on the inertial system display unit (ISDU).
- (6) This fault causes the ALT flag to show on the altimeter indicator and the SPD flag to show on the airspeed indicator.

B. Possible Causes

- (1) Wiring problem
- (2) ADIRU LEFT EXCITE circuit breaker, C425 or ADIRU RIGHT EXCITE circuit breaker, C426
- (3) AOA sensor, T433 (left) or T437 (right)
- (4) ADIRU, M1749 (left) or M1752 (right)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) (SSM 34-21)
- (2) (WDM 34-21)
- (3) (WDM 24-53-11)

E. Initial Evaluation

- (1) For the left ADIRU:
 - (a) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

- (2) For the right ADIRU:
 - (a) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

- (3) Do the applicable ADIRS BITE procedure (34-21 TASK 801).
- (4) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected fault.
- (5) If the maintenance message shows on the CDU and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check for a 28v ac reference signal at the applicable ADIRU connector:
 - (a) Remove the ADIRU. To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) For the left ADIRU:
 - 1) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

- (c) For the right ADIRU:
 - 1) 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>
C	15	C00426	ADIRU RIGHT EXC

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(d) For the left ADIRU:

- 1) Do a check for a 28v ac between these pins of connector D3687C:

D3687C	D3687C
pin 10	pin 4

- 2) Do a wiring check between these pins of connectors D3687C and the ground terminal GD5220-AC (WDM 34-21-11).

D3687C	GD5220-AC
pin 4	GROUND

- 3) Examine the ground terminal GD5220-AC for corrosion, correct bonding and torque.

(e) For the right ADIRU:

- 1) Do a check for a 28v ac between these pins of connector D3693C:

D3693C	D3693C
pin 10	pin 4

- 2) Do a wiring check between these pins of connectors D3693C and the ground terminal GD5205-AC (WDM 34-21-21).

D3693C	GD5205-AC
pin 4	GROUND

- 3) Examine the ground terminal GD5205-AC for corrosion, correct bonding and torque.

(f) If there is a 28v ac at connector D3687C and D3693C, then do these steps:

- 1) Replace the ADIRU.

These are the tasks:

Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801,

Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.

- 2) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.

- 3) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the fault.

(g) If there is not 28v ac at connector D3687C or D3693C, then continue.

- (2) Do this check of the wiring between the applicable ADIRU and the 28v ac circuit breaker connector:

(a) For the left ADIRU:

- 1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	7	C01007	ADIRU LEFT AC

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CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

- (b) For the right ADIRU:

- 1) Make sure that these circuit breakers are open and have safety tags:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC

- (c) For the left ADIRU, disconnect connector D41809P from the P18-2 panel.
(d) For the right ADIRU, disconnect connector D46065P from the P6-1 panel.
(e) For the left ADIRU, do a wiring check between these pins of connector D3687C for the ADIRU and connector D41809P:

D3687C	D41809P
pin 10	pin 4

- (f) Do a check of the grounding (GD636-AC) of the 28V AC Transformer, T391, that is before the ADIRU LEFT EXC circuit breaker, C425 (WDM 24-53-11).
(g) Examine the ground terminal GD636-AC for corrosion, correct bonding and torque.
(h) For the right ADIRU, do a wiring check between these pins of connector D3693C for the ADIRU and connector D46065P:

D3693C	D46065P
pin 10	pin 7

- (i) Do a check of the grounding (GD634-AC) of the 28V AC Transformer, T52, that is before the ADIRU RIGHT EXC circuit breaker, C426 (WDM 24-53-11).
(j) Examine the ground terminal GD634-AC for corrosion, correct bonding and torque.
(k) If you find a problem with the wiring, then do these steps:
1) Repair the wiring.
2) For the left ADIRU, re-connect connector D41809P to the P18-2 panel.
3) For the right ADIRU, re-connect connector D46065P to the P6-1 panel.
4) Re-install the ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
5) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected fault.
(l) If you do not find a problem with the wiring, then do these steps and continue:
1) For the left ADIRU, re-connect connector D41809P to the P18-2 panel.
2) For the right ADIRU, re-connect connector D46065P to the P6-1 panel.
(3) Install a new ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.

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- (a) If the test in the installation task for the ADIRU is satisfactory, then you corrected the fault.

————— END OF TASK —————

816. No Pitot ADM Data - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21027 NO PITOT ADM DATA
- (2) The maintenance message is identical for the left and right air data inertial reference systems (ADIRS). The left ADIRU maintenance message is shown on the ADIRS L BITE page on the control display unit (CDU). The right ADIRU maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) This message shows when the ADIRU does not receive signal from the pitot air data module (ADM).
- (4) This fault causes the status code 27 to show on the inertial system display unit (ISDU).
- (5) This fault causes the SPD flag to show on the airspeed indicator and the ALT flag to show on the altimeter indicator.

B. Possible Causes

- (1) Pitot ADM, M1750 (left) or M1753 (right).
- (2) Wiring between pitot ADM and ADIRU.
- (3) ADIRU, M1749 (left) or M1752 (right).

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) (SSM 34-21).
- (2) (WDM 34-21).

E. Initial Evaluation

- (1) For the applicable ADIRU, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (2) If the maintenance message does not show on the CDU, and the status code does not show on the ISDU, then there was an intermittent fault.

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- (3) If the maintenance message shows on the CDU and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the applicable pitot ADM.

These are the tasks:

Pitot Air Data Module - Removal, AMM TASK 34-21-04-000-801,

Pitot Air Data Module - Installation, AMM TASK 34-21-04-400-801.

- (a) For the applicable ADIRU, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (b) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the fault.
- (c) If the maintenance message shows on the CDU and the status code shows on the ISDU, then continue.
- (2) Do this check of the wiring between the applicable ADIRU and pitot ADM:
- (a) Remove the applicable ADIRU. To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
- (b) For the left ADIRU, disconnect the connector D3689 from the left pitot ADM.
- (c) For the right ADIRU, disconnect the connector D3695 from the right pitot ADM.
- (d) For the left ADIRU, do a wiring check between these pins of connector D3689 and connector D3687A for the ADIRU:

D3689	D3687A
pin 7	pin D10
pin 8	pin E10
pin 1	pin G6
pin 3	pin H6
pin 5	pin J6

- (e) For the right ADIRU, do a wiring check between these pins of connector D3695 and connector D3693A for the ADIRU:

D3695	D3693A
pin 7	pin D10
pin 8	pin E10
pin 1	pin G6
pin 3	pin H6
pin 5	pin J6

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) For the left ADIRU, re-connect the connector D3689 to the left pitot ADM.
 - 3) For the right ADIRU, re-connect the connector D3695 to the right pitot ADM.
 - 4) Re-install the applicable ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 5) For the applicable ADIRU, do this task: ADIRS BITE Procedure, 34-21 TASK 801.

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- 6) If the maintenance messages does not show on the CDU and the status code does not show on the ISDU, then you corrected the fault.
- (g) If you do not find a problem with the wiring, then do these steps and continue:
 - 1) For the left ADIRU, re-connect the connector D3689 to the left pitot ADM.
 - 2) For the right ADIRU, re-connect the connector D3695 to the right pitot ADM.
- (3) Install a new ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (a) If the test in the installation task for the ADIRU is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

817. No Static ADM Data - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21028 NO STATIC ADM DATA
- (2) The maintenance message is identical for the left and right air data inertial reference systems (ADIRS). The left ADIRU maintenance message is shown on the ADIRS L BITE page on the control display unit (CDU). The right ADIRU maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) This message shows when the ADIRU does not receive a valid signal from the static air data module (ADM).
- (4) This fault causes the status code 28 to show on the inertial system display unit (ISDU).
- (5) This fault causes the SPD flag to show on the airspeed indicator and the ALT flag to show on the altimeter indicator.

B. Possible Causes

- (1) Static ADM, M1751 (left) or M1754 (right).
- (2) Wiring problem between the ADM and the ADIRU.
- (3) ADIRU, M1749 (left) or M1752 (right).

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

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D. Related Data

- (1) (SSM 34-21).
- (2) (WDM 34-21).

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (2) If the maintenance message does not show on the CDU, and the status code does not show on the ISDU, then there was an intermittent fault.
- (3) If the maintenance message shows on the CDU and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the applicable static ADM.

These are the tasks:

Static Air Data Module - Removal, AMM TASK 34-21-04-000-802,

Static Air Data Module - Installation, AMM TASK 34-21-04-400-802.

- (a) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (b) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the fault.
- (c) If the maintenance message shows on the CDU and the status code shows on the ISDU, then continue.
- (2) Do this check of the wiring between the applicable ADIRU and static ADM:
 - (a) Remove the applicable ADIRU. To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) For the left ADIRU, disconnect the connector D3691 from the left static ADM.
 - (c) For the right ADIRU, disconnect the connector D3697 from the right static ADM.
 - (d) For the left ADIRU, do a wiring check between these pins of connector D3691 and connector D3687A for the ADIRU:

D3691	D3687A
pin 7	pin D9
pin 8	pin E9
pin 1	pin G6
pin 3	pin H6
pin 5	pin J6

- (e) For the right ADIRU, do a wiring check between these pins of connector D3697 and connector D3693A for the ADIRU:

D3697	D3693A
pin 7	pin D9
pin 8	pin E9
pin 1	pin G6
pin 3	pin H6
pin 5	pin J6

- (f) If you find a problem with the wiring, then do these steps:

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- 1) Repair the wiring.
 - 2) For the left ADIRU, re-connect the connector D3691 to the left static ADM.
 - 3) For the right ADIRU, re-connect the connector D3697 to the right static ADM.
 - 4) Re-install the applicable ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 5) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - 6) If the maintenance messages does not show on the CDU and the status code does not show on the ISDU, then you corrected the fault.
- (g) If you do not find a problem with the wiring, then do these steps and continue:
- 1) For the left ADIRU, re-connect the connector D3691 to the left static ADM.
 - 2) For the right ADIRU, re-connect the connector D3697 to the right static ADM.
- (3) Install a new applicable ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (a) If the test in the installation task for the ADIRU is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

818. No Baro 1 Data - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21029 NO BARO 1 DATA
- (2) The maintenance message is identical for the Left and Right ADIRS. The Left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The Right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) This message shows when the ADIRU does not receive the BARO 1 data from the Display Electronic Unit (DEU).
- (4) This fault causes the status code 29 to show on the ISDU.

B. Possible Causes

- (1) DEU 1 (2), M1808 (M1809)
- (2) Left (Right) ADIRU, M1749 (M1752)
- (3) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

D. Related Data

- (1) SSM 34-21

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- (2) WDM 34-21
- (3) SSM 31-62
- (4) WDM 31-62

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU, and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) For the applicable DEU, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If there is a maintenance message for a DEU or Electronic Flight Instrument System (EFIS) Control Panel failure, then go to the Fault Isolation Task for the applicable maintenance message to correct the problem.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If there is no maintenance message for a DEU or EFIS Control Panel failure, then continue.
- (2) Do this check of the wiring between the applicable ADIRU and DEU:
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Remove the DEU 1 (2), M1808 (M1809). This is the task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Examine the applicable wiring as follows (WDM 34-21, WDM 31-62):

LEFT ADIRU

**DEU 1, M1808
D3973B**

pin C7 pin F15
pin D7 pin G15

**LEFT ADIRU,
M1749
D3687A**

RIGHT ADIRU

**DEU 2, M1809
D3975B**

pin C7 pin F15
pin D7 pin G15

**RIGHT ADIRU,
M1752
D3693A**

- 1) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the DEU 1 (2), M1808 (M1809). This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - c) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - d) Do the Repair Confirmation at the end of this task.

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- 2) If you do not find a problem with the wiring, then do this step and continue:
 - a) Re-install the DEU 1 (2), M1808 (M1809). This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- (3) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU, and the status code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message does show on the CDU, and the status code does show on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

819. No Baro 2 Data - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21030 NO BARO 2 DATA
- (2) The maintenance message is identical for the Left and Right ADIRS. The Left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The Right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) This message shows when the ADIRU does not receive the BARO 2 data from the DEU.
- (4) This fault causes the status code 30 to show on the ISDU.

B. Possible Causes

- (1) DEU 1 (2), M1808 (M1809)
- (2) Left (Right) ADIRU, M1749 (M1752)
- (3) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

D. Related Data

- (1) SSM 34-21
- (2) WDM 34-21
- (3) SSM 31-62

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(4) WDM 31-62

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU, and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) For the applicable DEU, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If there is a maintenance message for a DEU or EFIS Control Panel failure, then go to the Fault Isolation Task for the applicable maintenance message to correct the problem.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If there is no maintenance message for a DEU or EFIS Control Panel failure, then continue.
- (2) Do this check of the wiring between the applicable ADIRU and DEU:
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Remove the DEU 1 (2), M1808 (M1809). This is the task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Examine the applicable wiring as follows (WDM 34-21, WDM 31-62):

LEFT ADIRU

DEU 1, M1808	LEFT ADIRU,
D3975D	M1749
	D3687A
pin J3	pin F13
pin K3	pin G13

RIGHT ADIRU

DEU 2, M1809	RIGHT ADIRU,
D3973D	M1752
	D3693A
pin J3	pin F13
pin K3	pin G13

- 1) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the DEU 1 (2), M1808 (M1809). This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - c) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - d) Do the Repair Confirmation at the end of this task.
- 2) If you do not find a problem with the wiring, then do this step and continue:
 - a) Re-install the DEU 1 (2), M1808 (M1809). This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

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- (3) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU, and the status code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message does show on the CDU, and the status code does show on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

820. Pitot ADM Data Invalid - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21032 PITOT ADM DATA INVLD
- (2) The maintenance message is identical for the left and right air data inertial reference systems (ADIRS). The left ADIRU maintenance message is shown on the ADIRS L BITE page on the control display unit (CDU). The right ADIRU maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) This message shows when the ADIRU receives an invalid signal from pitot air data module (ADM).
- (4) This fault causes the status code 32 to show on the inertial system display unit (ISDU).

B. Possible Causes

- (1) Pitot ADM, M1750 (left) or M1753 (right)
- (2) Wiring between the pitot ADM and ADIRU
- (3) ADIRU, M1749 (left) or M1752 (right).

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

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D. Related Data

- (1) (SSM 34-21).
- (2) (WDM 34-21).

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (2) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then there was an intermittent fault.
- (3) If the maintenance message shows on the CDU, and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the applicable pitot ADM.

These are the tasks:

Pitot Air Data Module - Removal, AMM TASK 34-21-04-000-801,

Pitot Air Data Module - Installation, AMM TASK 34-21-04-400-801.

- (a) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (b) If the maintenance message does not show on the CDU, and the status code does not show on the ISDU, then you corrected the fault.
- (c) If the maintenance message shows on the CDU, and the status code shows on the ISDU, then continue.
- (2) Do this check of the wiring between the applicable ADIRU and pitot ADM:
 - (a) Remove the applicable ADIRU. To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) For the left ADIRU, disconnect the connector D3689 from the left pitot ADM.
 - (c) For the right ADIRU, disconnect the connector D3695 from the right pitot ADM.
 - (d) For the left ADIRU, do a wiring check between these pins of connector D3689 and connector D3687A for the ADIRU:

D3689	D3687A
pin 7	pin D10
pin 8	pin E10
pin 1	pin G6
pin 3	pin H6
pin 5	pin J6

- (e) For the right ADIRU, do a wiring check between these pins of connector D3695 and connector D3693A for the ADIRU:

D3695	D3693A
pin 7	pin D10
pin 8	pin E10
pin 1	pin G6
pin 3	pin H6
pin 5	pin J6

- (f) If you find a problem with the wiring, then do these steps:

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- 1) Repair the wiring.
 - 2) For the left ADIRU, re-connect the connector D3689 to the left pitot ADM.
 - 3) For the right ADIRU, re-connect the connector D3695 to the right pitot ADM.
 - 4) Re-install the ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 5) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - 6) If the maintenance messages do not show on the CDU and the status code does not show on the ISDU, then you corrected the fault.
- (g) If you do not find a problem with the wiring, then do these steps and continue:
- 1) For the left ADIRU, re-connect the connector D3689 to the left pitot ADM.
 - 2) For the right ADIRU, re-connect the connector D3695 to the right pitot ADM.
- (3) Replace the applicable ADIRU.
- These are the tasks:
- Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801,
Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (a) If the test in the installation task for the ADIRU is satisfactory, then you corrected the fault.

END OF TASK

821. Static ADM Data Invalid - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21033 STATIC ADM DATA INVLD
- (2) This message shows when the ADIRU receives an invalid signal from the Static Air Data Module (ADM).
- (3) This maintenance message causes the Status Code 33 to show on the ISDU.
- (4) The maintenance message is identical for the Left and Right ADIRU.
 - (a) The Left ADIRU maintenance message is shown on the ADIRS L BITE Page on the CDU.
 - (b) The Right ADIRU maintenance message is shown on the ADIRS R BITE Page on the CDU.

B. Possible Causes

- (1) Left (Right) Static ADM, M1751 (M1754)
- (2) Left (Right) ADIRU, M1749 (M1752)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) WDM 34-21
- (2) SSM 34-21

E. Initial Evaluation

- (1) For the applicable ADIRU, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the Status Code 33 does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU and the Status Code 33 shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the applicable Left (Right) Static ADM, M1751 (M1754). These are the tasks:
 - Static Air Data Module - Removal, AMM TASK 34-21-04-000-802
 - Static Air Data Module - Installation, AMM TASK 34-21-04-400-802
- (a) For the applicable ADIRU, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - 1) If the maintenance message does not show on the CDU and the Status Code 33 does not show on the ISDU, then you corrected the problem.
 - 2) If the maintenance message still shows on the CDU and the Status Code 33 shows on the ISDU, then Install a new ADIRU. These are the tasks:
 - Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801

————— **END OF TASK** —————

822. Baro 1 Data Invalid - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21034 BARO 1 DATA INVLD
- (2) The maintenance message is identical for the left and right air data inertial reference systems (ADIRS). The left ADIRS maintenance message is shown on the ADIRS L BITE page on the control display unit (CDU). The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) The ADIRU uses the BARO 1 data from the display electronic unit (DEU) to compute BARO corrected altitude. This message shows when the ADIRU receives an invalid BARO 1 data from the DEU.

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(4) This fault causes the status code 34 to show on the inertial system display unit (ISDU).

B. Possible Causes

- (1) EFIS control panel.
- (2) DEU, M1808 (DEU 1) or M1809 (DEU 2).
- (3) ADIRU, M1749 (left) or M1752 (right).

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

D. Related Data

- (1) (SSM 34-21).
- (2) (WDM 34-21).

E. Initial Evaluation

- (1) Make sure you enter the correct barometric data from the EFIS control panel.
- (2) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (3) If the maintenance message does not show on the CDU, and the status code does not show on the ISDU, then there was an intermittent fault.
- (4) If the maintenance message shows on the CDU and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) For the applicable DEU, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If the CDS BITE shows a DEU internal fault or an EFIS control panel fault in CURRENT STATUS, then go to the fault isolation task for the applicable CDS maintenance message to correct the fault.
 - 1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - 2) If the ADIRS maintenance message does not show on the CDU, and the status code does not show on the ISDU, then you corrected the fault.
 - (b) If the CDS BITE does not show a DEU internal fault or an EFIS control panel fault, then continue.
- (2) Replace the applicable ADIRU.

These are the tasks:

Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801,
Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (a) If the test in the installation task for the ADIRU is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

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823. Baro 2 Data Invalid - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21035 BARO 2 DATA INVLD
- (2) The maintenance message is identical for the left and right air data inertial reference systems (ADIRS). The left ADIRS maintenance message is shown on the ADIRS L BITE page on the control display unit (CDU). The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) The ADIRU uses the BARO 2 data from the display electronic unit (DEU) to compute BARO corrected altitude. This message shows when the ADIRU receives invalid BARO 2 data from the DEU.
- (4) This fault causes the status code 35 to show on the inertial system display unit (ISDU).

B. Possible Causes

- (1) EFIS control panel.
- (2) DEU, M1808 (DEU 1) or M1809 (DEU 2).
- (3) ADIRU, M1749 (left) or M1752 (right).

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) (SSM 34-21).
- (2) (WDM 34-21).

E. Initial Evaluation

- (1) Make sure you enter the correct barometric data from the EFIS control panel.
- (2) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (3) If the maintenance message does not show on the CDU, and the status code does not show on the ISDU, then you corrected the fault.
- (4) If the maintenance message shows on the CDU and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

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F. Fault Isolation Procedure

- (1) For the applicable DEU, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If the CDS BITE shows a DEU internal fault or an EFIS control panel fault in CURRENT STATUS, then go to the fault isolation task for the applicable CDS maintenance message to correct the fault.
 - 1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - 2) If the ADIRS maintenance message does not show on the CDU, and the status code does not show on the ISDU, then you corrected the fault.
 - (b) If the CDS BITE does not show a DEU internal fault or an EFIS control panel fault, then continue.
- (2) Replace the applicable ADIRU.

These are the tasks:

Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801,
Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (a) If the test in the installation task for the ADIRU is satisfactory, then you corrected the fault.

———— **END OF TASK** ————

824. Air/Ground Logic Invalid - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21038 AIR/GND LOGIC INVLD
- (2) The maintenance message is identical for the Left and Right ADIRS. The Left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The Right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) The ADIRU receives the air/ground signal from the Proximity Switch Electronic Unit (PSEU) to determine the airplane is in air or on ground status. This message shows when the ADIRU receives an invalid air/ground signal from the PSEU.
- (4) On-ground functional testing of the PSEU or the ADIRS can cause this message to be generated. The message is cleared by running the Air Data Reference (ADR) ground test (ADIRU Part Number (P/N) HG2050AC07 or later), or by cycling the ADIRU input power (ADIRU P/N HG2050AC06 or earlier). Cycling the ADIRU input power will require a full alignment.
- (5) This fault causes the status code 38 to show on the ISDU.

B. Possible Causes

- (1) PSEU, M2061
- (2) Left (Right) ADIRU, M1749 (M1752)
- (3) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) SSM 34-21
- (2) WDM 34-21-11
- (3) WDM 34-21-21

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Put the airplane in the air mode. These are the tasks:
 - Prepare to Put the Airplane in the Air Mode, AMM TASK 32-09-00-840-801
 - Put the Airplane in the Air Mode, AMM TASK 32-09-00-860-801
 - (a) Do this task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.
 - (b) Do this task: Proximity Switch Electronics Unit (PSEU) BITE Procedure, 32-09 TASK 801.
 - 1) If the PSEU BITE shows an air/ground relay fault or aPSEU internal fault in EXISTING FAULTS, then go to the Fault Isolation Task for the applicable PSEU maintenance message to correct the problem.
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the PSEU BITE does not show an air/ground relay fault or a PSEU internal fault, then continue.
- (2) Do this check of the wiring between the applicable ADIRU and PSEU:
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Do the steps for Prepare for the Removal in this task: Proximity Switch Electronics Unit (PSEU) Removal, AMM TASK 32-09-10-000-801.
 - (c) Disconnect connector D11138 (D11140) from the PSEU, M2061.

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- (d) Examine the applicable wiring as follows (WDM 34-21-11, WDM 34-21-21):

LEFT ADIRU

PSEU, M2061	LEFT ADIRU,
D11138	M1749
pin 53	D3687B
	pin K15

RIGHT ADIRU

PSEU, M2061	RIGHT ADIRU,
D11140	M1752
pin 53	D3693B
	pin K15

- 1) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-connect connector D11138 (D11140) to the PSEU, M2061.
 - c) Put the airplane systems back to normal on ground condition. This is the task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.
 - d) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
C	15	C01355	LANDING GEAR AIR/GND SYS 2
C	16	C01356	LANDING GEAR AIR/GND SYS 1
D	1	C01399	PSEU PRI
D	2	C01400	PSEU ALTN

- e) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - f) Do the Repair Confirmation at the end of this task.
- 2) If you do not find a problem with the wiring, then do these steps and continue:
 - a) Re-connect connector D11138 (D11140) to the PSEU, M2061.
 - b) Put the airplane systems back to normal on ground condition. This is the task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.
 - c) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
C	15	C01355	LANDING GEAR AIR/GND SYS 2
C	16	C01356	LANDING GEAR AIR/GND SYS 1
D	1	C01399	PSEU PRI
D	2	C01400	PSEU ALTN

- (3) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.

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- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the problem.
- (b) If the maintenance message shows on the CDU and the status code shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

END OF TASK

825. IR Observed Faults on Captain's EFIS Displays - Fault Isolation

A. Description

- (1) This task is for these observed faults:
- (a) HDG flag shows on the captain's electronic flight instrument system (EFIS) display.
- (b) TRK flag shows on the captain's EFIS display.
- (c) Heading or track data does not show on captain's EFIS display.
- (d) PITCH message shows on the captain's EFIS display.
- (e) ROLL message shows on the captain's EFIS display.
- (f) Vertical speed pointer removed from view on the captain's EFIS display.
- (g) ATT flag shows on captain's EFIS display.
- (h) VSI flag shows on captain's EFIS display.

B. Possible Causes

- (1) Left ADIRU, M1749
- (2) DEU 1, M1808
- (3) Wiring between ADR to IR
- (4) Wiring between the ADIRUs and the DEU 1

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C01359	DISPLAY DEU 1 PRI
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP

D. Related Data

- (1) (SSM 34-21-11)
- (2) (WDM 34-21-11)
- (3) (WDM 31-62-11)

E. Initial Evaluation

- (1) Do these steps to prepare for initial evaluation and fault isolation:
 - (a) Make sure the DISPLAY switch on the P5 panel is in the AUTO position.
 - (b) Make sure the IRS switch on the P5 panel is in the NORMAL position.
 - (c) Make sure the left ADIRU is aligned and in the NAV mode.
- (2) If the observed fault shows on the captain's EFIS display, then do the Fault Isolation Procedure below.
- (3) If the observed fault does not show on the captain's EFIS display, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do the DEU 1 BITE (31-62 TASK 801).
 - (a) If there is a maintenance message that relates to the DEU 1 internal fault, the captain's EFIS display, or the left ADIRU, then go to the applicable fault isolation task for that message to correct the fault.
 - 1) If the observed fault does not show on the captain's EFIS display, then you corrected the fault.
 - 2) If the observed fault shows on the captain's EFIS display, then continue.
- (2) Do the left ADIRS BITE (34-21 TASK 801).
 - (a) If there is a left ADIRS fault message that shows on the CDU, then go to the FIM task to clear that message.
 - (b) After you clear the left ADIRS maintenance messages, if the observed fault does not show on the captain's EFIS display, then you corrected the fault.
 - (c) After you clear the left ADIRS maintenance messages, if the observed fault continues to shows on the captain's EFIS display, then continue.
- (3) Do this check of the ADIRU switching:
 - (a) Make sure the right ADIRU is aligned and in the NAV mode.
 - (b) Set the IRS switch on the P5 panel to the BOTH ON R position.
 - (c) If the observed fault does not show on the captain's EFIS display, then do these steps:
 - 1) Replace the left ADIRU.

These are the tasks:
Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801,
Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (d) If the observed fault shows on the captain's EFIS display, then continue.

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- (4) Replace the DEU 1.

These are the Task:

Display Electronic Unit Removal, AMM TASK 31-62-21-000-801

Display Electronic Unit Installation, AMM TASK 31-62-21-400-801

- (a) If the installation test is satisfactory, then you corrected the fault.

- (5) Do a wiring check between the ADR to IR section of the ADIRU.

- (a) For the left ADIRU, do a wiring check between terminal block TB523, to D3687B and D3687A:

TB523	D3687B
ZA21	pin K4
ZB21	pin K5

TB523	D3687A
ZA21	pin A9
ZB21	pin B9

- (b) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Do the left ADIRS BITE (34-21 TASK 801).
 - a) If there is a left ADIRS fault message that shows on the CDU, then go to the FIM task to clear that message.
 - b) After you clear the left ADIRS maintenance messages, if the observed fault does not show on the captain's EFIS display, then you corrected the fault.
 - c) After you clear the left ADIRS maintenance messages, if the observed fault continues to shows on the captain's EFIS display, then continue.

- (c) If you don't find the problem with the wiring, then continue.

- (6) Do this check of the wiring between the ADIRUs and the DEU 1:

- (a) Remove the left and right ADIRUs. To remove them, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
- (b) Remove the DEU 1. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
- (c) For the left ADIRU, do a wiring check between these pins of connectors D3687B and D3973A:

D3687B	D3973A
pin G7	pin C2
pin G8	pin D2

- (d) For the right ADIRU, do a wiring check between these pins of connectors D3693B and D3973D:

D3693B	D3973D
pin C10	pin C2
pin C11	pin D2

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- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the DEU 1. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 3) Re-install the left and right ADIRUs. To install them, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 4) If the observed fault does not show on the captain's EFIS display, then you corrected the fault.

————— **END OF TASK** —————

826. IR Observed Faults on First Officer's EFIS Displays - Fault Isolation

A. Description

- (1) This task is for these observed faults:
- (a) HDG flag shows on the first officer's electronic flight instrument system (EFIS) display.
 - (b) TRK flag shows on the first officer's EFIS display.
 - (c) Heading or track does not show on first officer's EFIS display.
 - (d) PITCH message shows on the first officer's EFIS display.
 - (e) ROLL message shows on the first officer's EFIS display.
 - (f) Vertical speed pointer removed from view on the first officer's EFIS display.
 - (g) ATT flag shows on the first officer's EFIS display.
 - (h) VSI flag shows on the first officer's EFIS display.

B. Possible Causes

- (1) Right ADIRU, M1752
- (2) DEU 2, M1809
- (3) Wiring between ADR to IR
- (4) Wiring between the ADIRUs and the DEU 2

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

D. Related Data

- (1) (SSM 34-21-11)
- (2) (WDM 34-21-11)
- (3) (WDM 31-62-21)

E. Initial Evaluation

- (1) Do these steps to prepare for initial evaluation and fault isolation:
 - (a) Make sure the DISPLAY switch on the P5 panel is in the AUTO position.
 - (b) Make sure the IRS switch on the P5 panel is in the NORMAL position.
 - (c) Make sure the right ADIRS is aligned and in the NAV mode.
- (2) If the observed fault shows on the first officer's EFIS display, then do the Fault Isolation Procedure below.
- (3) If the observed fault does not show on the first officer's EFIS display, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do the DEU 2 BITE (31-62 TASK 801).
 - (a) If there is a fault message that relates to the DEU 2 internal fault, the first officer's EFIS display, or the right ADIRU; then go to the FIM task to clear that message.
 - (b) After you clear the DEU 2 maintenance messages, if the observed fault does not show on the first officer's EFIS display, then you corrected the fault.
 - (c) After you clear the DEU 2 maintenance messages, if the observed fault continues to show on the first officer's EFIS display, then continue.
- (2) Do the right ADIRS BITE (34-21 TASK 801).
 - (a) If there is a right ADIRS fault message that shows on the CDU, then go to the FIM task to clear that message.
 - (b) After you clear the right ADIRS maintenance messages, if the observed fault does not show on the first officer's EFIS display, then you corrected the fault.
 - (c) After you clear the right ADIRS maintenance messages, if the observed fault continues to show on the first officer's EFIS display, then continue.
- (3) Do this check of the ADIRU switching:
 - (a) Make sure the left ADIRU is aligned and in the NAV mode.
 - (b) Set the IRS switch on the P5 panel to the BOTH ON L position.
 - (c) If the observed fault does not show on the first officer's EFIS display, then do these steps:
 - 1) Replace the right ADIRU.

These are the tasks:

Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801,
Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.

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- (d) If the observed fault shows on the first officer's EFIS display, then continue.
- (4) Replace the DEU 2.
- These are the Task:
- Display Electronic Unit Removal, AMM TASK 31-62-21-000-801,
Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- (a) If the installation test is satisfactory, then you corrected the fault.
- (5) Do a wiring check between the ADR to IR section of the ADIRU.
- (a) For the right ADIRU, do a wiring check between terminal block TB521, to D3693B and D3693A:
- | TB523 | D3687B |
|--------------|---------------|
| ZA21 | pin K4 |
| ZB21 | pin K5 |
-
TB523	D3687A
ZA21	pin A9
ZB21	pin B9
- (b) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Do the left ADIRS BITE (34-21 TASK 801).
 - a) If there is a left ADIRS fault message that shows on the CDU, then go to the FIM task to clear that message.
 - b) After you clear the left ADIRS maintenance messages, if the observed fault does not show on the captain's EFIS display, then you corrected the fault.
 - c) After you clear the left ADIRS maintenance messages, if the observed fault continues to shows on the captain's EFIS display, then continue.
- (c) If you don't find the problem with the wiring, then continue.
- (6) Do this check of the wiring between the ADIRUs and the DEU 2:
- (a) Remove the left and right ADIRUs. To remove them, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
- (b) Remove the DEU 2. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
- (c) For the left ADIRU, do a wiring check between these pins of connectors D3687B and D3975A:
- | D3687B | D3975A |
|---------------|---------------|
| pin C10 | pin C2 |
| pin C11 | pin D2 |
- (d) For the right ADIRU, do a wiring check between these pins of connectors D3693B and D3975D:

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D3693B

pin G7 pin C2
pin G8 pin D2

D3975D

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the DEU 2. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 3) Re-install the left and right ADIRUs. To install them, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 4) If the observed fault does not show on the first officer's EFIS display, then you corrected the fault.

END OF TASK

827. ADR Observed Faults on Captain's EFIS Displays - Fault Isolation

A. Description

- (1) This task is for these observed faults:
 - (a) ALT flag shows on the captain's EFIS display.
 - (b) SPD flag shows on captain's EFIS display.
 - (c) True Airspeed (TAS) data does not show on the captain's EFIS display.

B. Possible Causes

- (1) Baro corrected altitude is out of range
- (2) Angle of Attack (AOA) sensor
- (3) ADM sensor
- (4) Wiring between the ADIRUs and the DEU 1
- (5) Left ADIRU, M1749
- (6) DEU 1, M1808

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C01359	DISPLAY DEU 1 PRI
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC
D	10	C01361	DISPLAY DEU 1 HOLDUP

D. Related Data

- (1) (SSM 34-21-14)
- (2) (SSM 34-21-24)
- (3) (WDM 34-21-14)
- (4) (WDM 34-21-24)

E. Initial Evaluation

- (1) Do these steps to prepare for initial evaluation and fault isolation:
 - (a) Make sure that the barometric settings on the captain's and first officer's EFIS control panels are not set to cause out of range baro altitude (Range limits: -2000 ft to +51000 ft).
 - (b) Make sure the DISPLAY switch on the P5 panel is in the AUTO position.
 - (c) Make sure the left ADIRU is aligned and in the NAV mode.
 - (d) Make sure the R IRS switch on the mode select unit is in the OFF position.
 - (e) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

- (2) If the observed fault shows on the captain's EFIS display, then do the Fault Isolation Procedure below.
 - (a) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

- (3) If the observed fault does not show on the captain's EFIS display, then there was an intermittent fault.
 - (a) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

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F. Fault Isolation Procedure

- (1) Do the air data inertial reference system self-test in this task: Air Data Inertial Reference System - Operational Test, AMM TASK 34-21-00-710-801.
 - (a) If static or pitot ADM test is unsatisfactory, then do these steps.
 - 1) Replace the static and/or pitot ADM as appropriate, these are the tasks:
 - Pitot Air Data Module - Removal, AMM TASK 34-21-04-000-801
 - Pitot Air Data Module - Installation, AMM TASK 34-21-04-400-801
 - Static Air Data Module - Removal, AMM TASK 34-21-04-000-802
 - Static Air Data Module - Installation, AMM TASK 34-21-04-400-802.
 - 2) Do the Repair Confirmation at the end of this task.
- (2) For the left ADIRS, Do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If there is a left ADIRS fault message that shows on the CDU, then go to the FIM task to clear that message.
 - (b) After you clear the left ADIRS maintenance messages, do the Repair Confirmation at the end of this task.
- (3) For the DEU 1, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If there is a fault message that relates to the DEU 1 internal fault, the captain's EFIS displays, or the left ADIRU; then go to the FIM task to clear that message.
 - (b) After you clear the DEU 1 maintenance messages, do the Repair Confirmation at the end of this task.
- (4) Do this check of the left ADIRU:
 - (a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

- (b) Set the left ADIRU in the NAV mode.
- (c) If the observed fault does not show on the captain's EFIS display, then do these steps:
 - 1) Replace the left ADIRU. These are the tasks:
 - Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (d) If the observed fault shows on the captain's EFIS display, then do this step and continue.
 - 1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

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CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

- (5) Replace the DEU 1. These are the tasks:
- Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
 - Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- (a) Do the Repair Confirmation at the end of this task.
- (6) Do this check of the wiring between the ADIRUs and the DEU 1:
- (a) Remove the left and right ADIRUs. To remove them, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
- (b) Remove the DEU 1. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
- (c) For the left ADIRU, do a wiring check between these pins of connectors D3687A, D3973B, and D3973D:

D3687A	D3973B
pin A5	pin C5
pin B5	pin D5

D3687A	D3973D
pin A5	pin E5
pin B5	pin F5

- (d) For the right ADIRU, do a wiring check between these pins of connectors D3693A, D3973A, and D3973E:

D3693A	D3973A
pin A9	pin J15
pin B9	pin K15

D3693A	D3973E
pin A9	pin C5
pin B9	pin D5

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the DEU 1. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 3) Re-install the left and right ADIRUs. To install them, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 4) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do a check of the captain's EFIS display for the observed fault.
- (a) If the observed fault does not show on the captain's EFIS display, then you corrected the fault.

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- (b) If the observed fault continues to show on the captain's EFIS display, then continue.

————— **END OF TASK** —————

828. ADR Observed Faults on First Officer's EFIS Displays - Fault Isolation

A. Description

- (1) This task is for these observed faults:
- (a) ALT flag shows on the first officer's EFIS display.
 - (b) SPD flag shows on first officer's EFIS display.
 - (c) TAS data does not show on the first officer's EFIS display.

B. Possible Causes

- (1) Baro corrected altitude is out of range
- (2) AOA sensor
- (3) ADM sensor
- (4) Wiring between the ADIRUs and the DEU 2
- (5) Right ADIRU, M1752
- (6) DEU 2, M1809

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

D. Related Data

- (1) (SSM 34-21-11)
- (2) (WDM 34-21-11)
- (3) (WDM 31-62-11)

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E. Initial Evaluation

- (1) Do these steps to prepare for initial evaluation and fault isolation:
 - (a) Make sure that the barometric settings on the captain's and first officer's EFIS control panels are not set to cause out of range baro altitude (Range limits: -2000 ft to +51000 ft).
 - (b) Make sure that the DISPLAY switch on the P5 panel is in the AUTO position.
 - (c) Make sure that the right ADIRU is aligned and in the NAV mode.
 - (d) Make sure that the L IRS switch on the mode select unit is in the OFF position.
 - (e) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

- (2) If the observed fault shows on the first officer's EFIS display, then do the Fault Isolation Procedure below.
 - (a) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

- (3) If the observed fault does not show on the first officer's EFIS display, then there was an intermittent fault.
 - (a) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC



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F. Fault Isolation Procedure

- (1) Do the air data inertial reference system self-test in this task: Air Data Inertial Reference System - Operational Test, AMM TASK 34-21-00-710-801.
 - (a) If static and/or pitot ADM test is unsatisfactory, then do these steps:
 - 1) Replace the static and/or pitot ADM as appropriate, these are the tasks:
 - Pitot Air Data Module - Removal, AMM TASK 34-21-04-000-801
 - Pitot Air Data Module - Installation, AMM TASK 34-21-04-400-801
 - Static Air Data Module - Removal, AMM TASK 34-21-04-000-802
 - Static Air Data Module - Installation, AMM TASK 34-21-04-400-802.
 - 2) Do the Repair Confirmation at the end of this task.
- (2) For the right ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If there is a right ADIRS fault message that shows on the CDU, then go to the FIM task to clear that message.
 - (b) After you clear the right ADIRS maintenance messages, do the Repair Confirmation at the end of this task.
- (3) For the DEU 2, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If there is a fault message that relates to the DEU 2 internal fault, the first officer's EFIS displays, or the left ADIRU; then go to the FIM task to clear that message.
 - (b) After you clear the DEU 2 maintenance messages, do the Repair Confirmation at the end of this task.
- (4) Do this check of the right ADIRU:
 - (a) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

- (b) Set the right ADIRU in the NAV mode.
- (c) If the observed fault does not show on the first officer's EFIS display, then do these steps:
 - 1) Replace the right ADIRU. These are the tasks:
 - Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (d) If the observed fault shows on the first officer's EFIS display, then do this step and continue.
 - 1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

- (5) Replace the DEU 2. These are the tasks:

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- Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
- Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- (a) Do the Repair Confirmation at the end of this task.
- (6) Do this check of the wiring between the ADIRUs and the DEU 2:
 - (a) Remove the left and right ADIRUs. To remove them, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Remove the DEU 2. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) For the left ADIRU, do a wiring check between these pins of connectors D3687A, D3975B, and D3975D:

D3687A	D3975B
pin A9	pin C5
pin B9	pin D5

D3687A	D3975D
pin A9	pin E5
pin B9	pin F5

- (d) For the right ADIRU, do a wiring check between these pins of connectors D3693A, D3975A, and D3975E:

D3693A	D3975A
pin A5	pin J15
pin B5	pin K15

D3693A	D3975E
pin A5	pin C5
pin B5	pin D5

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the DEU 2. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 3) Re-install the left and right ADIRUs. To install them, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 4) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do a check of the first officer's EFIS display for the observed fault.
 - (a) If the observed fault does not show on the first officer's EFIS display, then you corrected the fault.
 - (b) If the observed fault continues to show on the first officer's EFIS display, then continue.

———— **END OF TASK** ————

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829. Ground Crew Call Horn Sounds - Fault Isolation

A. Description

- (1) This task is for the Observed Fault:
 - (a) Ground crew call horn sounds continuously.
- (2) Under normal operation, the ground crew call horn sounds when ADIRU has one of these condition:
 - no equipment cooling
 - no AC power and operates on DC power
- (3) This fault is for ground crew call horn sounds continuously when there is equipment cooling and ADIRU is operated on AC power.

B. Possible Causes

- (1) Integrated Flight System Accessory Unit (IFSAU), M1474
- (2) Air Supply Low Flow Detector, M1915
- (3) Air Exhaust Low Flow Detector, M100
- (4) Left (Right) ADIRU, M1749 (M1752)
- (5) IRS Master Caution Unit, M1206
- (6) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) SSM 31-52-71
- (2) SSM 34-21-11
- (3) SSM 34-21-16
- (4) SSM 34-21-21
- (5) WDM 31-52-71
- (6) WDM 34-21-11
- (7) WDM 34-21-16
- (8) WDM 34-21-21

E. Initial Evaluation

- (1) Make sure that the equipment cooling fans are on.

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	7	C01007	ADIRU LEFT AC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC

- (3) Make sure that the ON DC Lights on the MSU are OFF.
- (4) If the ground crew call horn does not sound, then there was an intermittent problem.
- (5) If the ground crew call horn sounds continuously, then do the Fault Isolation Procedure below.

NOTE: You can open the ADIRU DC circuit breakers to temporarily turn off the ground crew call horn. The MSU will show DC FAIL for the ADIRU that was turned off.

F. Fault Isolation Procedure

- (1) Do the Left and Right ADIRU Built-In-Test Equipment (BITE) procedures (ADIRS BITE Procedure, 34-21 TASK 801).
- (a) If there is a fault message that relates to the ADIRU internal fault, then go to the Fault Isolation Manual (FIM) task to clear that message.
- (b) After you clear the ADIRU fault message, do the Repair Confirmation at the end of this task.
- (2) Do the installation test of the IFSAU: Integrated Flight System Accessory Unit Installation, AMM TASK 22-11-37-400-801.
- (a) If there is a fault message that relates to the IFSAU internal fault, then go to the FIM task to clear that message.
- (b) After you clear the IFSAU fault message, do the Repair Confirmation at the end of this task.
- (3) Replace the Air Supply Low Flow Detector, M1915. These are the tasks:
- Equipment Cooling Low Flow Sensors Removal, AMM TASK 21-27-03-000-802
 - Equipment Cooling Low Flow Sensors Installation, AMM TASK 21-27-03-400-802
- (a) Do the Repair Confirmation at the end of this task.
- (4) Replace the Air Exhaust Low Flow Detector, M100. These are the tasks:
- Equipment Cooling Low Flow Sensors Removal, AMM TASK 21-27-03-000-802
 - Equipment Cooling Low Flow Sensors Installation, AMM TASK 21-27-03-400-802
- (a) Do the Repair Confirmation at the end of this task.
- (5) Do this wiring check (WDM 31-52-71):
- (a) Remove the IRS Master Caution Unit, M1206. This is the task: IRS Master Caution Unit Removal, AMM TASK 34-21-07-000-801.
- (b) Do a wiring check as follows:

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**IRS Master
Caution Unit,
M1206
D2269**

pin 4 GD624-DC

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IRS Master Caution Unit, M1206. This is the task: IRS Master Caution Unit Installation, AMM TASK 34-21-07-400-801.
 - 3) Do the Repair Confirmation at the end of this task.
- (d) If you do not find a problem with the wiring, then continue.
- (6) Do this wiring check (WDM 34-21-16):
 - (a) Disconnect the connector D3464 from the Air Supply Low Flow Detector, M1915.
 - (b) Disconnect the connector D164 from the Air Exhaust Low Flow Detector, M100.
 - (c) Remove the IFSAU, M1474. This is the task: Integrated Flight System Accessory Unit (IFSAU) Removal, AMM TASK 22-11-37-000-801.
 - (d) Do a wiring check as follows:

**Air Supply Low
Flow Detector,
M1915**

D3464

pin 8 pin 69

IFSAU, M1474

D235B

**Air Exhaust
Low Flow
Detector, M100**

D164

pin 8 pin 69

IFSAU, M1474

D235B

- 1) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the IFSAU, M1474. This is the task: Integrated Flight System Accessory Unit Installation, AMM TASK 22-11-37-400-801.
 - c) Re-connect the connector D3464 to the Air Supply Low Flow Detector, M1915.
 - d) Re-connect the connector D164 to the Air Exhaust Low Flow Detector, M100.
 - e) Do the Repair Confirmation at the end of this task.
 - 2) If you do not find a problem with the wiring, then do these steps and continue:
 - a) Re-connect the connector D3464 to the Air Supply Low Flow Detector, M1915.
 - b) Re-connect the connector D164 to the Air Exhaust Low Flow Detector, M100.
- (7) Do this wiring check (WDM 34-21-11, WDM 34-21-21):
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.

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- (b) Remove the IFSAU, M1474. This is the task: Integrated Flight System Accessory Unit (IFSAU) Removal, AMM TASK 22-11-37-000-801.
- (c) Do a wiring check as follows:

Left ADIRU,

M1749

D3687B

pin E11 pin 60

IFSAU, M1474

D235A

Right ADIRU,

M1752

D3693B

pin E11 pin 60

IFSAU, M1474

D235B

- 1) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the IFSAU, M1474. This is the task: Integrated Flight System Accessory Unit Installation, AMM TASK 22-11-37-400-801.
 - c) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - d) Do the Repair Confirmation at the end of this task.
- 2) If you do not find a problem with the wiring, then do these steps:
 - a) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - b) Install a new IFSAU, M1474. This is the task: Integrated Flight System Accessory Unit Installation, AMM TASK 22-11-37-400-801.
 - <1> Make sure that the tests in the installation tasks for the ADIRU and IFSAU are satisfactory.
 - c) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) If the ground crew call horn does not sound, then you corrected the problem.
- (2) If the ground crew call horn continues to sound, then continue Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

830. Minimum Maneuver Speed or Stick Shaker Speed Difference - Fault Isolation

A. Description

- (1) This task is for this observed fault:
 - (a) Captain's minimum maneuver speed or stick shaker speed is different from the first officer's speed.

B. Possible Causes

- (1) Stall Management Yaw Damper (SMYD)
- (2) Air Data Inertial Reference Unit (ADIRU), M1749 (L) or M1752 (R)
- (3) Angle of Attack Sensors (AOA)

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C. Initial Evaluation

- (1) If the stick shaker speeds are different by less than 3 knots with airspeed at or near stick shaker speed, then the cause of the fault is either crosswind or system tolerance. If the stick shaker speeds are different by less than 15 knots with airspeed at or near cruise, then the cause of the fault is either crosswind or system tolerance.
 - (a) No maintenance action is necessary.
- (2) If the stick shaker speeds are different by more than 3 knots with airspeed at or near stick shaker speed, or if the stick shaker speeds are different by more than 15 knots with airspeed at or near cruise, then do the fault isolation.

D. Fault Isolation Procedure

- (1) Do the Stall Management Yaw Damper BITE Procedure, 27-32 TASK 801.
 - (a) Do the fault isolation tasks for the maintenance messages that you find.
 - 1) If the observed fault does not occur on the next flight leg, then you corrected the fault.
 - 2) If the observed fault occurs on the next flight leg, then continue.
 - (b) If you find no maintenance messages, then continue.
- (2) Do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) Do the fault isolation tasks for the maintenance messages that you find.
 - (b) If you find no maintenance messages, then continue.
- (3) Examine the AOA sensor. This is the task: Angle of Attack Sensor - Inspection, AMM TASK 34-21-05-200-801.
 - (a) If the Inspection is not satisfactory, then replace the defective AOA sensor. These are the tasks:
 - Angle of Attack Sensor Removal, AMM TASK 34-21-05-000-801.
 - Angle of Attack Sensor Installation, AMM TASK 34-21-05-400-801.
 - 1) If the observed fault does not occur on the next flight leg, then you corrected the fault.

————— **END OF TASK** —————

832. ADIRS Maintenance Code 05 - Fault Isolation

A. Description

- (1) This task is for ADIRS maintenance code 05.
- (2) ADIRS maintenance code 05, shows on the inertial system display unit (ISDU), indicates that the ISDU pin 10 does not receive 28 Vdc from the left ADIRU.
- (3) There is no related ADIRS maintenance message that shows on the ADIRS BITE page on the CDU.

B. Possible Causes

- (1) Inertial system display unit (ISDU), P5-70
- (2) Wiring between the ISDU and the ADIRU

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

D. Related Data

- (1) (SSM 34-21-11)
(2) (WDM 34-21-11)

E. Initial Evaluation

- (1) For the left ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
(2) If the maintenance code does not show on the ISDU, then there was an intermittent fault.
(3) If the maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the inertial system display unit (ISDU).

These are the tasks:

Inertial System Display Unit Removal, AMM TASK 34-21-02-000-801,

Inertial System Display Unit Installation, AMM TASK 34-21-02-400-801.

- (a) For the left ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- 1) If the maintenance code does not show on the ISDU, then you corrected the fault.
 - 2) If the maintenance code shows on the ISDU, then continue.
- (2) Do this check of the wiring between the left ADIRU and the ISDU:
- (a) Remove the left ADIRU. To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
- (b) Remove the ISDU. To remove it, do this task: Inertial System Display Unit Removal, AMM TASK 34-21-02-000-801.
- (c) Do this wiring check between connector D3687B for the left ADIRU and connector D2169 for the ISDU:
- | | |
|------------------|--------------|
| D3687B | D2169 |
| pin D1 | pin 10 |
- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 3) Re-install the ISDU. To install it, do this task: Inertial System Display Unit Installation, AMM TASK 34-21-02-400-801.
 - 4) For the left ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - 5) If the maintenance code does not show on the ISDU, then you corrected the fault.

————— **END OF TASK** —————

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833. ADIRS Maintenance Code 06 - Fault Isolation

A. Description

- (1) This task is for ADIRS maintenance code 06.
- (2) ADIRS maintenance code 06, shows on the inertial system display unit (ISDU), indicates that the ISDU pin 10 does not receive 28 Vdc from the right ADIRU.
- (3) There is no related ADIRS maintenance message that shows on the ADIRS BITE page on the CDU.

B. Possible Causes

- (1) Inertial system display unit (ISDU), P5-70
- (2) Wiring between the ISDU and the right ADIRU

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) (SSM 34-21-21)
- (2) (WDM 34-21-21)

E. Initial Evaluation

- (1) For the right ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (2) If the maintenance code does not show on the ISDU, then there was an intermittent fault.
- (3) If the maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the inertial system display unit (ISDU).
These are the tasks:
Inertial System Display Unit Removal, AMM TASK 34-21-02-000-801,
Inertial System Display Unit Installation, AMM TASK 34-21-02-400-801.
 - (a) For the right ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - 1) If the maintenance code does not show on the ISDU, then you corrected the fault.
 - 2) If the maintenance code shows on the ISDU, then continue.
- (2) Do this check of the wiring between the right ADIRU and the ISDU:
 - (a) Remove the right ADIRU. To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Remove the ISDU. To remove it, do this task: Inertial System Display Unit Removal, AMM TASK 34-21-02-000-801.
 - (c) Do this wiring check between connector D3693B for the right ADIRU and connector D2183 for the ISDU:

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D3693B

pin D1

D2183

pin 10

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 3) Re-install the ISDU. To install it, do this task: Inertial System Display Unit Installation, AMM TASK 34-21-02-400-801.
 - 4) For the right ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - 5) If the maintenance code does not show on the ISDU, then you corrected the fault.

————— **END OF TASK** —————

834. Angle of Attack (AOA) Indication on Captain's PFD and F/O's PFD are Different - Fault Isolation

A. Description

- (1) This task is for this observed fault:
 - (a) Angle of Attack (AOA) Indication on Captain's PFD and F/O's PFD are different.
- (2) This task is for this maintenance message:
 - (a) 31-65070 AOA DISAGREE

B. Possible Causes

- (1) AOA sensor vane angle.
- (2) AOA sensor vane damage.
- (3) Stall management yaw damper (SMYD) problem.
- (4) Wiring problem.

C. Fault Isolation Procedure

- (1) If the AOA indications on the PFDs are different by less than 1.5 degrees then the difference is within tolerance and no maintenance action is necessary.
 - (a) If the difference is more than 1.5 degrees, then continue.
- (2) Make sure the left and right AOA sensor vanes are streamlined with the airplane in order to set them to zero degrees.
 - (a) If the observed fault does not occur during a subsequent flight, then you corrected the fault.
 - (b) If the observed fault occurs during a subsequent flight, then continue.
- (3) Do a check for a stall management yaw damper (SMYD) problem.
 - (a) Do this task: Stall Management Yaw Damper BITE Procedure, 27-32 TASK 801.
 - 1) For any maintenance messages displayed, do the given FIM task.
 - (b) If the observed fault does not occur during a subsequent flight, then you corrected the fault.
 - (c) If the observed fault occurs during a subsequent flight, then continue.
- (4) Inspect the AOA sensor vane for damage. To inspect it, do this task: Angle of Attack Sensor - Inspection, AMM TASK 34-21-05-200-801.

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- (a) If the vane is bent or there are nicks or other damage in the surface or edges of the vane, replace the AOA sensor.
- These are the tasks:
- Angle of Attack Sensor Removal, AMM TASK 34-21-05-000-801,
Angle of Attack Sensor Installation, AMM TASK 34-21-05-400-801.
- (b) If the observed fault does not occur during a subsequent flight, then you corrected the fault.
- (c) If the observed fault occurs during a subsequent flight, then continue.
- (5) Replace the applicable Stall Management Yaw Damper (SMYD).
- These are the tasks:
- Stall Management Yaw Damper (SMYD) Removal, AMM TASK 27-32-42-000-801,
Stall Management Yaw Damper (SMYD) Installation, AMM TASK 27-32-42-400-801.
- (a) If the observed fault does not occur during a subsequent flight, then you corrected the fault.
- (b) If the observed fault occurs during a subsequent flight, then continue.
- (6) Do this wiring check between the left AOA sensor and the number 1 SMYD:
- (a) Remove the SMYD 1. To remove the SMYD, do this task: Stall Management Yaw Damper (SMYD) Removal, AMM TASK 27-32-42-000-801.
- (b) Remove the left AOA sensor. To remove the sensor, do this task: Angle of Attack Sensor Removal, AMM TASK 34-21-05-000-801.
- (c) Examine the connector pins and sockets for damage and unwanted objects.
- (d) Do a wiring check between these pins:
- | D3683B (SMYD
1) | D365 (L AOA
SENSOR) |
|----------------------------|--------------------------------|
| pin 55 | pin 1 |
| ground | pin 2 |
| pin 72 | pin 3 |
| pin 71 | pin 4 |
| pin 58 | pin 5 |
- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring. (WDM 34-21-12, 34-21-22).
 - 2) Re-install SMYD 1. To install the SMYD, do this task: Stall Management Yaw Damper (SMYD) Installation, AMM TASK 27-32-42-400-801.
 - 3) Re-install the AOA sensor. To install the sensor, do this task: Angle of Attack Sensor Installation, AMM TASK 34-21-05-400-801.
 - 4) If the observed fault does not occur during a subsequent flight, then you corrected the fault.
- (f) If you did not find a problem with the wiring, then continue.
- (7) Do this wiring check between the right AOA sensor and the number 2 SMYD:
- (a) Remove the SMYD 2. To remove the SMYD, do this task: Stall Management Yaw Damper (SMYD) Removal, AMM TASK 27-32-42-000-801.

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- (b) Remove the right AOA sensor. To remove the sensor, do this task: Angle of Attack Sensor Removal, AMM TASK 34-21-05-000-801.
- (c) Examine the connector pins and sockets for damage and unwanted objects.
- (d) Do a wiring check between these pins:

D3685B (SMYD 2)	D287 (R AOA SENSOR)
pin 55	pin 1
ground	pin 2
pin 71	pin 3
pin 72	pin 4
pin 58	pin 5

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install SMYD 2. To install the SMYD, do this task: Stall Management Yaw Damper (SMYD) Installation, AMM TASK 27-32-42-400-801.
 - 3) Re-install the AOA sensor. To install the sensor, do this task: Angle of Attack Sensor Installation, AMM TASK 34-21-05-400-801.
 - 4) If the observed fault does not occur during a subsequent flight, then you corrected the fault.

————— **END OF TASK** —————

835. Maintenance Code Shows on ISDU - Fault Isolation

A. Description

- (1) This task is for this Observed Fault:
 - (a) A maintenance code shows on the ISDU.

B. Possible Causes

- (1) One or more ADIRS faults
 - NOTE:** The fault monitor that causes the maintenance code on the ISDU, also causes a maintenance message that shows on the CDU.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) SSM 34-21
- (2) WDM 34-21-21
- (3) WDM 32-31-12

E. Initial Evaluation

- (1) Do the applicable ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do these steps to look for maintenance codes on the ISDU:
 - (a) Set the DSPL SEL Switch on the ISDU to the HDG/STS position.
 - (b) Set the SYS DSPL 'L' for the Left ADIRU and 'R' for the Right ADIRU.
 - (c) If there is a maintenance code, it will be shown on the right side of the Right Display of the ISDU.

NOTE: If there are more maintenance codes, the CLR key will be ON.
 - (d) If the CLR key is ON, push it one time to show each maintenance code.
 - (e) Make a record of each maintenance code.
- (2) Use the table that follows to find the applicable FIM Task for each ISDU Maintenance Code:

ISDU Maintenance Code to CDU Maintenance Message Cross Reference Table

LRU/SYSTEM	ISDU MAINT CODE	ASSOCIATED CDU MAINT MSG	GO TO FIM TASK
ADIRS	01	34-21001	34-21 TASK 802
ADIRS	02	34-21002	34-21 TASK 803
ADIRS	03	34-21003	34-21 TASK 804
ADIRS	04	34-21004	34-21 TASK 805
ADIRS	05	N/A	34-21 TASK 832
ADIRS	06	N/A	34-21 TASK 833
ADIRS	07	34-21007	34-21 TASK 840
ADIRS	08	34-21008	34-21 TASK 807
ADIRS	09	34-21009	34-21 TASK 808
ADIRS	10	34-21010	34-21 TASK 809
ADIRS	18	34-21018	34-21 TASK 841

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ISDU Maintenance Code to CDU Maintenance Message Cross Reference Table (Continued)

LRU/SYSTEM	ISDU MAINT CODE	ASSOCIATED CDU MAINT MSG	GO TO FIM TASK
ADIRS	19	34-21019	34-21 TASK 811
ADIRS	20	34-21020	34-21 TASK 839
ADIRS	21	34-21021	34-21 TASK 812
ADIRS	22	34-21022	34-21 TASK 813
ADIRS	23	34-21023	34-21 TASK 814
ADIRS	24	34-21024	34-21 TASK 815
ADIRS	27	34-21027	34-21 TASK 816
ADIRS	28	34-21028	34-21 TASK 817
ADIRS	29	34-21029	34-21 TASK 818
ADIRS	30	34-21030	34-21 TASK 819
ADIRS	31	34-21031	34-21 TASK 810
ADIRS	32	34-21032	34-21 TASK 820
ADIRS	33	34-21033	34-21 TASK 821
ADIRS	34	34-21034	34-21 TASK 822
ADIRS	35	34-21035	34-21 TASK 823
ADIRS	37	34-21037	34-21 TASK 806
ADIRS	38	34-21038	34-21 TASK 824
ADIRS	39	34-21039	34-21 TASK 843
ADIRS	40	34-21040	34-21 TASK 844
ADIRS	41	34-21041	34-21 TASK 845
ADIRS	42	34-21042	34-21 TASK 846
ADIRS	43	34-21043	34-21 TASK 847
ADIRS	44	34-21044	34-21 TASK 848
ADIRS	45	34-21045	34-21 TASK 849
ADIRS	46	34-21046	34-21 TASK 850
ADIRS	47	34-21047	34-21 TASK 851
ADIRS	48	34-21048	34-21 TASK 852

G. Repair Confirmation

- (1) Do the applicable ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance code does not show on the ISDU, then you corrected the problem.

———— **END OF TASK** ————

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836. VERIFY POSITION shows on the CDU, and POS SHIFT page shows large ADIRU drift - Fault Isolation

A. Description

- (1) This task is for this observed fault:
 - (a) VERIFY POSITION shows on the CDU and the POS SHIFT page shows a large position differences between the ADIRU and the FMC.

B. Possible Causes

- (1) ADIRU, M1749 (left) or M1752 (right)
- (2) Flight management computer (FMC), M1175 (left) or M1632 (right).

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) (SSM 34-21-11).
- (2) (WDM 34-21-11).

E. Initial Evaluation

- (1) The flight crew observed that VERIFY POSITION showed on the CDU and the POS SHIFT page showed a large position differences between the ADIRU and the FMC.

F. Fault Isolation Procedure

- (1) Do these tasks:
 - (a) IR Radial Position Error Check, AMM TASK 34-21-00-200-801
 - (b) Inertial Reference Residual Groundspeed Error Check, AMM TASK 34-21-00-200-802
- (2) If the ADIRS is not in tolerance for the two checks, follow the instruction in the task to fix the problem (34-21 TASK SUPPORT Figure 302).
- (3) If the ADIRS is in tolerance for the two checks, then continue.
- (4) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - (a) Do the fault isolation tasks for the maintenance messages that you find.
 - (b) If you find no maintenance messages, monitor the applicable after the subsequent flight leg.

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- (5) Do the repair confirmation below.

G. Repair Confirmation

- (1) Do these tasks:
- (a) Air Data Inertial Reference System - Operational Test, AMM TASK 34-21-00-710-801
 - (b) Flight Management Computer System BITE Procedure, 34-61 TASK 801
- (2) Check and make sure there are no maintenance messages found.

————— **END OF TASK** —————

839. ADR Failure - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
- (a) 34-21020 ADR FAIL
- (2) The maintenance message is identical for the left and right ADIRS. The left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) Each ADIRU supplies ADR data to multiple systems and components. ADR data is on ARINC 429 data buses. The data on each ADR bus is the same. One data bus goes from the ADR section of the ADIRU to the IR section.
- (4) The message 34-21020 shows when the ADIRU IR section detects invalid ADR data or no ADR data is present. The ADR fault also causes the status code 20 to show on the ISDU.
- (5) This fault will also cause 34-21007 ADR DATA INVLD. Do the Fault Isolation Procedure below first.

B. Possible Causes

- (1) ADM
- (2) AOA sensor
- (3) Wiring problem
- (4) Left (Right) ADIRU, M1749 (M1752)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

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D. Related Data

- (1) SSM 34-21-11
- (2) WDM 34-21-12, 34-21-22

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show, then there was an intermittent fault.
 - (b) If the maintenance message shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do the air data inertial reference system self-test in this task: Air Data Inertial Reference System - Operational Test, AMM TASK 34-21-00-710-801
 - (a) If the static and/or pitot ADM test is unsatisfactory, then do these steps.
 - 1) Replace the static and/or pitot ADM as appropriate, these are the tasks:
 - Pitot Air Data Module - Removal, AMM TASK 34-21-04-000-801,
 - Pitot Air Data Module - Installation, AMM TASK 34-21-04-400-801,
 - Static Air Data Module - Removal, AMM TASK 34-21-04-000-802,
 - Static Air Data Module - Installation, AMM TASK 34-21-04-400-802.
 - a) If the static and/or pitot ADM test is satisfactory, then you corrected the fault.
 - b) If the test is unsatisfactory, then continue.
 - (b) If the test is satisfactory, then continue.
- (2) Do the test of the AOA sensor (ADIRU) (Preferred) in this task: Angle of Attack System Test, AMM TASK 34-21-05-730-801.
 - (a) Test the sensor from 90° to -90° at 10° increments. All results should be within 1° of tolerance.
 - (b) If the test is unsatisfactory, then replace AOA sensor. These are the tasks:
 - Angle of Attack Sensor Removal, AMM TASK 34-21-05-000-801
 - Angle of Attack Sensor Installation, AMM TASK 34-21-05-400-801
 - 1) Do the ADIRS BITE procedure: ADIRS BITE Procedure, 34-21 TASK 801
 - a) If the maintenance message does not show, then you corrected the fault.
 - b) If the maintenance message continues to show, then continue.
 - (c) If the test is satisfactory, then continue.
- (3) Do this check of the wiring between the applicable ADIRU and the ADM:
 - (a) Remove the ADIRU. This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Remove the ADMs. To remove them, do these tasks:
 - Pitot Air Data Module - Removal, AMM TASK 34-21-04-000-801,
 - Static Air Data Module - Removal, AMM TASK 34-21-04-000-802.
 - (c) For the left ADIRU, do a wiring check between these pins of connector D3687A for the ADIRU and connector D3689 for the pitot ADM and D3691 for the static ADM (WDM 34-21-12):

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D3687A	D3689
D10	7
E10	8

D3687A	D3691
D9	7
E9	8

- (d) For the right ADIRU, do a wiring check between these pins of connector D3693A for the ADIRU and connector D3695 for the pitot ADM and D3697 for the static ADM (WDM 34-21-22):

D3693A	D3695
D10	7
E10	8

D3693A	D3697
D9	7
E9	8

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ADIRU. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 3) Re-install the ADMs. To install them, do these tasks:
Pitot Air Data Module - Installation, AMM TASK 34-21-04-400-801,
Static Air Data Module - Installation, AMM TASK 34-21-04-400-802.
 - 4) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - 5) If the maintenance message does not show on the CDU, then you corrected the fault.

- (f) If you do not find a problem with the wiring, then do this step and continue:

- 1) Re-install the ADMs. These are the tasks:
Pitot Air Data Module - Installation, AMM TASK 34-21-04-400-801,
Static Air Data Module - Installation, AMM TASK 34-21-04-400-802.

- (4) Do this check of the wiring between the applicable ADIRU and the AOA sensors:

- (a) Remove the AOA sensor. This is the task: Angle of Attack Sensor Removal, AMM TASK 34-21-05-000-801.

- (b) For the left ADIRU, do a wiring check between these pins of connector D3687A for the ADIRU and connector D10015 for the left AOA sensor:

D3687A	D10015
J7	3
H7	4
K7	5

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- (c) For the right ADIRU, do a wiring check between these pins of connector D3693A for the ADIRU and connector D10017 for the right AOA sensor:

D3693A	D10017
J7	4
H7	3
K7	5

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the ADIRU. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- 3) Re-install the AOA sensor. This is the task: Angle of Attack Sensor Installation, AMM TASK 34-21-05-400-801.
- 4) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- 5) If the maintenance message does not show on the CDU, then you corrected the fault.

- (e) If you do not find a problem with the wiring, then do this step and continue:

- 1) Re-install the AOA sensor. This is the task: Angle of Attack Sensor Installation, AMM TASK 34-21-05-400-801.

- (5) Replace the ADIRU, these are the tasks:

- Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
- Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801

- (a) If you find a problem during the test, then correct the problem and re-run the test.

- 1) If the test is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

840. ADR Data Invalid - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21007 ADR DATA INVLD
- (2) The maintenance message is identical for the left and right air data inertial reference systems (ADIRS). The left ADIRS maintenance message is shown on the ADIRS L BITE page on the control display unit (CDU). The right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) Each ADIRU supplies air data reference (ADR) data to many systems and components. ADR data is on ARINC 429 data buses. The data on each ADR bus is the same. One data bus goes from the ADR section of the ADIRU to the IR section.
- (4) The message 34-21007 shows when the IR receives invalid data from the ADR section of the ADIRU. The ADR fault also causes the status code 07 to show on the inertial system display unit (ISDU).

B. Possible Causes

- (1) ADM Sensor
- (2) AOA Sensor

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- (3) TAT Probe

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) SSM 34-21
(2) WDM 34-21

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (2) If the maintenance message 34-21020 shows, then do the corrective tasks to remove that maintenance message before other correlated faults. If other maintenance messages show on the CDU along with the maintenance message 34-21007, then do the corrective tasks to remove those maintenance messages first.
- (a) After you clear the correlated faults, if the maintenance message 34-21007 does not show on the CDU, and the status code 07 does not show on the ISDU, then you corrected the fault.
- (b) After you clear the correlated faults, if the maintenance message 34-21007 continues to show on the CDU, and the status code 07 shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do the air data inertial reference (ADIRS) BITE procedure to view maintenance messages from previous flight legs:
ADIRS BITE Procedure, 34-21 TASK 801
- (2) Do the air data inertial reference (ADIRS) system self-test in this task:
Air Data Inertial Reference System - Operational Test, AMM TASK 34-21-00-710-801.
- (a) If static and/or pitot ADM test is unsatisfactory, then do these steps.
- 1) Replace the static and/or pitot ADM as appropriate. These are the tasks:
 - Pitot Air Data Module - Removal, AMM TASK 34-21-04-000-801
 - Pitot Air Data Module - Installation, AMM TASK 34-21-04-400-801
 - Static Air Data Module - Removal, AMM TASK 34-21-04-000-802

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- Static Air Data Module - Installation, AMM TASK 34-21-04-400-802
 - a) If pitot and/or static ADM test is satisfactory, then you corrected the fault.
 - b) If the test is unsatisfactory, then continue.
- (b) If the test is satisfactory, then continue.
- (3) Do the test of the AOA sensor (ADIRU) (Preferred) in this task: Angle of Attack System Test, AMM TASK 34-21-05-730-801.
 - (a) Test the sensor from 90° to -90° at 10° increments. All results should be within 1° of tolerance.
 - (b) If the test is unsatisfactory, then replace AOA sensor. These are the tasks:
 - Angle of Attack Sensor Removal, AMM TASK 34-21-05-000-801
 - Angle of Attack Sensor Installation, AMM TASK 34-21-05-400-801
 - 1) Do the air data inertial reference (ADIRS) BITE procedure:
ADIRS BITE Procedure, 34-21 TASK 801
 - a) If the maintenance message does not show, then you corrected the fault.
 - b) If the maintenance message continues to show, then continue.
 - (c) If the test is satisfactory, then continue.
- (4) Do the test of the TAT probe in this task: Air Data Reference - System Test, AMM TASK 34-21-00-730-802.
 - (a) If the test is unsatisfactory, then replace TAT probe. These are the tasks:
 - Total Air Temperature Probe - Removal, AMM TASK 34-21-06-000-801
 - Total Air Temperature Probe - Installation, AMM TASK 34-21-06-400-801
 - 1) Do the air data inertial reference (ADIRS) BITE procedure:
ADIRS BITE Procedure, 34-21 TASK 801
 - a) If the maintenance message does not show, then you corrected the fault.
 - b) If the maintenance message continues to show, then continue.
 - (b) If the test is satisfactory, then continue.
- (5) Replace the applicable ADIRU. These are the tasks:
 - Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
- (a) If the test in the installation task for the ADIRU is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

841. No ADR Data - Fault Isolation

A. Description

- (1) This task is for this maintenance messages:
 - (a) 34-21018 NO ADR DATA
- (2) The maintenance message is identical for the Left and Right ADIRS. The Left ADIRS maintenance message is shown on the ADIRS L BITE page on the CDU. The Right ADIRS maintenance message is shown on the ADIRS R BITE page on the CDU.
- (3) The maintenance message 34-21018 shows when the Inertial Reference does not receive data from the ADR.

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(4) This faults cause the status code 18 to show on the ISDU.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)
- (2) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) SSM 34-21
- (2) WDM 34-21

E. Initial Evaluation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU, and the status code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the wiring for the applicable ADIRU:
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Do a check of the condition of the pins and connector of the ADIRU.
 - (c) Examine the applicable wiring as follows (WDM 34-21):

LEFT ADIRU

D3687A	D3687B
pin A9	pin K4
pin B9	pin K5

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RIGHT ADIRU

D3693A

pin A9
pin B9

D3693B

pin K4
pin K5

- 1) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - c) Do the Repair Confirmation at the end of this task.
- 2) If you do not find a problem with the wiring, then continue.
- (2) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU, and the status code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message does show on the CDU, and the status code does show on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

842. IRS DC FAIL ANNUNCIATOR LIGHT - Fault Isolation

A. Description

- (1) This task is for IRS DC FAIL LIGHT.
- (2) The left IRS DC FAIL LIGHT is shown on the left side of the MSU. The right IRS DC FAIL LIGHT is shown on the right side of the MSU.

B. Possible Causes

- (1) Wiring problem
- (2) IFSAU
- (3) ADIRU
- (4) Mode Select Unit (MSU)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

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CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) SSM 34-21
- (2) WDM 34-21

E. Fault Isolation Procedure

- (1) Do this check for 28v dc power signal:
 - (a) Remove the ADIRU. This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - (b) For the left ADIRU:
 - 1) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC

- 2) Do a check for a 28v dc from pin 7 to pin 8 (ground) of the connector D3687C.
 - (c) For the Right ADIRU:
 - 1) Remove the safety tag and close this circuit breaker:
- 2) Do a check for a 28v dc from pin 7 to pin 8 (ground) of the connector D3693C.
- (d) If there is a 28v dc at pin 7 of connector D3687C and D3693C, then do these steps:
 - 1) Do this check of the wiring between the ADIRUs and the IFSAU:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	17	C01010	ADIRU RIGHT DC

- 2) Do a check for a 28v dc from pin 7 to pin 8 (ground) of the connector D3693C.
 - (d) If there is a 28v dc at pin 7 of connector D3687C and D3693C, then do these steps:
 - 1) Do this check of the wiring between the ADIRUs and the IFSAU:
 - a) Remove the IFSAU. This is the task: Integrated Flight System Accessory Unit (IFSAU) Removal, AMM TASK 22-11-37-000-801
 - b) For the right ADIRU, do a wiring check between these pins of connector D3693C and D3693B for the ADIRU and connector D235A and D235B for the IFSAU.

D3693C	D235A
pin 7	pin 111
pin 7	pin 112

- c) If you find a problem with the wiring, then do these steps:
 - <1> Repair the wiring.

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- <2> Re-install the ADIRU. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- <3> Re-install the IFSAU . This is the task: Integrated Flight System Accessory Unit Installation, AMM TASK 22-11-37-400-801.
- <4> Do the Repair Confirmation at the end of this task.
- <5> If the Repair Confirmation is not satisfactory, then continue.
- d) If you do not find a problem with the wiring, then do these steps:
 - <1> Install a new IFSAU. This is the task: Integrated Flight System Accessory Unit Installation, AMM TASK 22-11-37-400-801.
 - <2> Do a Repair Confirmation below.
 - <3> If the Repair Confirmation is not satisfactory, then continue.
 - <a> Install a new ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - Do the Repair Confirmation at the end of this task.
 - <c> If the Repair Confirmation is not satisfactory, then continue.
- (e) If there is no 28v dc at pin 7 of connector D3687c and D3693c, then continue.
- (2) Do this check of the wiring between the ADIRUs and the ADIRU 28v DC circuit breakers.
 - (a) For the left ADIRU, do a wiring check between these pins of connector D3687C for the ADIRU and connector D41803P for the ADIRU 28v DC circuit breakers.

D3687C	D41803P
pin 7	pin 22
 - (b) For the right ADIRU, do a wiring check between these pins of connector D3693C for the ADIRU and connector D46061P for the ADIRU 28v DC circuit breakers.

D3693C	D46061P
pin 7	pin 23
- (c) If you find a problem with the wiring, then do these steps.
 - 1) Repair the wiring.
 - 2) Re-install the ADIRUs. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
 - 3) Do the Repair Confirmation at the end of this task.
 - 4) If the Repair Confirmation is not satisfactory, then continue.
- (d) If you did not find a problem with the wiring, then do these steps.
 - 1) Re-install the ADIRUs. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
 - 2) Replace the applicable ADIRU 28v DC circuit breakers.
 - 3) Do the Repair Confirmation at the end of this task.
 - 4) If the Repair Confirmation is not satisfactory, then continue.
- (3) Replace the MSU. These are the tasks:
 - IRS Mode Select Unit Removal, AMM TASK 34-21-03-000-801
 - IRS Mode Select Unit Installation, AMM TASK 34-21-03-400-801

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- (a) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) On the ADIRU MSU, set the IRS switch to NAV.
(a) Make sure the IRS DC FAIL light is not on.

———— **END OF TASK** ————

843. ADR Pin Parity Test Fail - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
(a) 34-21039 ADR PIN PAR TST FAIL
- (2) This message shows when the ADIRU detects an invalid program pin configuration of the ADIRS.
(a) The ADIRU monitors the status of these program pins during power up.
(b) The ADR program pins control the Display Options and Configurations.
- (3) When the maintenance message 34-21039 shows on the CDU, maintenance code 39 also shows on the ISDU.
- (4) The maintenance message is the same for the Left and Right ADIRS.
(a) The Left ADIRS maintenance message shows on the CDU ADIRS L BITE Page.
(b) The Right ADIRS maintenance message shows on the CDU ADIRS R BITE Page.
- (5) Program pins F14, A2, A3, 2H, 2J, 5J, 8G, 7F, 7G, and 3C are related to this maintenance message.
- NOTE: Open circuit pins are not shown in the Wiring Diagram Manual (WDM)s.
(a) Make sure that all Program Pin connections are correctly connected per the applicable WDM.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)
(2) Wiring Problem (Incorrect Program Pin Connections)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) WDM 34-21-11
- (2) WDM 34-21-21
- (3) SSM 34-21-11
- (4) SSM 34-21-21

E. Initial Evaluation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU ADIRS L (R) BITE Page and the associated maintenance code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU ADIRS L (R) BITE Page and the associated maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the program pins of the ADIRU:
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801..
 - (b) Make sure that the program pins F14, A2, A3, 2H, 2J, 5J, 8G, 7F, 7G, and 3C of the Left (Right) ADIRU connector D3687A (D3693A) are connected as specified in WDM 34-21-11, WDM 34-21-21.
 - 1) If the program pins are not connected correctly, then do these steps:
 - a) Connect the program pins as specified in the WDM.
 - b) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - c) Do the Repair Confirmation at the end of this task.
 - 2) If the program pins are connected correctly, then continue.
- (2) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the associated maintenance code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message still shows on the CDU and the associated maintenance code shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

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844. Airframe Identification Invalid — Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21040 AIRFRAME ID INVLD
- (2) This message shows when the ADIRU detects an invalid program pin configuration of the ADIRS.
 - (a) The ADIRU monitors the status of these program pins during power up.
 - (b) The Airplane Data Recorder (ADR) program pins control the Display Options and Configurations.
- (3) The maintenance message is the same for the Left and Right ADIRS.
 - (a) The Left ADIRS maintenance message shows on the CDU ADIRS L BITE Page.
 - (b) The Right ADIRS maintenance message shows on the CDU ADIRS R BITE Page.
- (4) Program pins E1, E2, F1, G1, H1, and K1 are related to this fault.

NOTE: Open circuit pins are not shown in the WDMs.

 - (a) Make sure that all Program Pin connections are correctly connected per the applicable WDM.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)
- (2) Wiring Problem (Incorrect Program Pin Connections)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) WDM 34-21-11
- (2) WDM 34-21-21
- (3) SSM 34-21-11
- (4) SSM 34-21-21

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E. Initial Evaluation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU ADIRS L (R) BITE Page and the associated maintenance code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU ADIRS L (R) BITE Page and the associated maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the program pins of the ADIRU:
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Make sure that the program pins E1, E2, F1, G1, H1, and K1 of the Left (Right) ADIRU connector D3687A (D3687A) are connected as specified in WDM 34-21-11, WDM 34-21-21.
 - 1) If the program pin is not connected correctly, then do these steps:
 - a) Connect the program pins as specified in the WDM.
 - b) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - c) Do the Repair Confirmation at the end of this task.
 - 2) If the program pins are connected correctly, then continue.
 - (c) If the program pin is connected correctly, then continue.
- (2) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message still shows on the CDU and the status code shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

845. Baro Program Pin Parity Fail — Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21041 BARO PRO PIN PAR FAIL
- (2) This message shows when the ADIRU detects an invalid program pin configuration of the ADIRS.
 - (a) The ADIRU monitors the status of these program pins during power up.
 - (b) The ADR program pins control the Display Options and Configurations.
- (3) The maintenance message is the same for the Left and Right ADIRS.

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- (a) The Left ADIRS maintenance message shows on the CDU ADIRS L BITE Page.
- (b) The Right ADIRS maintenance message shows on the CDU ADIRS R BITE Page.
- (4) Program pins G8, G7, and F7 are related to this fault.

NOTE: Open circuit pins are not shown in the WDMs.

- (a) Make sure that all Program Pin connections are correctly connected per the applicable WDM.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)
- (2) Wiring Problem (Incorrect Program Pin Connections)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) WDM 34-21-11
- (2) WDM 34-21-21
- (3) SSM 34-21-11
- (4) SSM 34-21-21

E. Initial Evaluation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU ADIRS L (R) BITE Page and the associated maintenance code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU ADIRS L (R) BITE Page and the associated maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the program pins of the ADIRU:
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.

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- (b) Make sure that the program pins G8, G7, and F7 of the Left (Right) ADIRU connector D3687A (D3693A) are connected as specified in WDM 34-21-11, WDM 34-21-21.
 - 1) If the program pins are not connected correctly, then do these steps:
 - a) Connect the program pins as specified in the WDM.
 - b) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - c) Do the Repair Confirmation at the end of this task.
 - (c) If the program pin is connected correctly, then continue.
- (2) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message still shows on the CDU and the status code shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

846. VMO/MMO Discrete Invalid - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21042 VMO/MMO DISCRETE INVLD
- (2) This message shows when the ADIRU detects an invalid program pin configuration of the ADIRS.
 - (a) The ADIRU monitors the status of these program pins during power up.
 - (b) The ADR program pins control the Display Options and Configurations.
- (3) When the maintenance message 34-21042 shows on the CDU, maintenance code 42 also shows on the ISDU.
- (4) The Machair Speed Warning System gives an Aural Warning that tells the flight crew when the Air Speed is more than the Mach or Airspeed Limit.
- (5) The maintenance message is the same for the Left and Right ADIRS.
 - (a) The Left ADIRS maintenance message shows on the CDU ADIRS L BITE Page.
 - (b) The Right ADIRS maintenance message shows on the CDU ADIRS R BITE Page.
- (6) Program pins D3, E3, F3, and G3 are related to this fault.

NOTE: Open circuit pins are not shown in the WDMs.

 - (a) Make sure that all four Program Pin connections are correctly connected per the applicable WDM.
 - 1) No more than one of the four VMO/MMO input pins should be grounded.

B. Possible Causes

- (1) Mach Airspeed Warning Module, P5-19
- (2) Wiring Problem (Incorrect Program Pin Connections)

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00170	MACH WARN SYS-1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00549	MACH WARN SYS -2

D. Related Data

- (1) WDM 34-16-11
- (2) WDM 34-16-21
- (3) SSM 34-16-11
- (4) SSM 34-16-21

E. Initial Evaluation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU ADIRS L (R) BITE Page and the associated maintenance code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU ADIRS L (R) BITE Page and the associated maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the program pins for the Left (Right) ADIRU:
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Make sure that the program pins D3, E3, F3, and G3 of the Left (Right) ADIRU connector D3687A (D3693A) are connected as specified in WDM 34-21-11, WDM 34-21-21.
 - 1) If the program pins are not connected correctly, then do these steps:
 - a) Connect the program pins as specified in the WDM.
 - b) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - c) Do the Repair Confirmation at the end of this task.
 - 2) If the program pins are connected correctly, then continue.
- (2) Replace the Flight Recorder/Mach Airspeed Warning Test Module, P5-19. These are the tasks:
 - Flight Recorder/Mach Airspeed Warning Test Module Removal, AMM TASK 31-31-12-000-801
 - Flight Recorder/Mach Airspeed Warning Test Module Installation, AMM TASK 31-31-12-400-801
- (a) Do the Repair Confirmation at the end of this task.

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G. Repair Confirmation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the associated maintenance code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message still shows on the CDU and the associated maintenance code shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

847. Baro Assignment Invalid — Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21043 BARO ASGMT INVLD
- (2) This message shows when the ADIRU detects an invalid program pin configuration of the ADIRS.
 - (a) The ADIRU monitors the status of these program pins during power up.
 - (b) The ADR program pins control the Display Options and Configurations.
- (3) The maintenance message is the same for the Left and Right ADIRS.
 - (a) The Left ADIRS maintenance message shows on the CDU ADIRS L BITE Page.
 - (b) The Right ADIRS maintenance message shows on the CDU ADIRS R BITE Page.
- (4) Program pins F9, G9, F10, G10, and G11 are related to this fault.

NOTE: Open circuit pins are not shown in the WDMs.

- (a) Make sure that all Program Pin connections are correctly connected per the applicable WDM.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)
- (2) Wiring Problem (Incorrect Program Pin Connections)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

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D. Related Data

- (1) WDM 34-21-11
- (2) WDM 34-21-21
- (3) SSM 34-21-11
- (4) SSM 34-21-21

E. Initial Evaluation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU ADIRS L (R) BITE Page and the associated maintenance code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU ADIRS L (R) BITE Page and the associated maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the program pins of the ADIRU:
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801..
 - (b) Make sure that the program pins F9, G9, F10, G10, and G11 of the Left (Right) ADIRU connector D3687A (D3693A) are connected as specified in WDM 34-21-11, WDM 34-21-21.
 - 1) If the program pin is not connected correctly, then do these steps:
 - a) Connect the program pins as specified in the WDM.
 - b) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - c) Do the Repair Confirmation at the end of this task.
 - 2) If the program pins are connected correctly, then continue.
- (2) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message still shows on the CDU and the status code shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

848. Sensor Source Select Invalid — Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21044 SENSOR SRC SEL INVLD

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- (2) This message shows when the ADIRU detects an invalid program pin configuration of the ADIRS.
 - (a) The ADIRU monitors the status of these program pins during power up.
 - (b) The ADR program pins control the Display Options and Configurations.
- (3) The maintenance message is the same for the Left and Right ADIRS.
 - (a) The Left ADIRS maintenance message shows on the CDU ADIRS L BITE Page.
 - (b) The Right ADIRS maintenance message shows on the CDU ADIRS R BITE Page.
- (4) Program pins F14, A2, A3, 2H, 2J, 5J, 8G, 7F, 7G, E1, E2, F1, G1, H1, K1 and 3C are related to this fault.

NOTE: Open circuit pins are not shown in the WDMs.

- (a) Make sure that all Program Pin connections are correctly connected per the applicable WDM.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)
- (2) Wiring Problem (Incorrect Program Pin Connections)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) SSM 34-21-11
- (2) WDM 34-21-21
- (3) SSM 34-21-11
- (4) SSM 34-21-21

E. Initial Evaluation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU ADIRS L (R) BITE Page and the associated maintenance code does not show on the ISDU, then there was an intermittent fault.

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- (b) If the maintenance message shows on the CDU ADIRS L (R) BITE Page and the associated maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the program pins of the ADIRU:
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801..
 - (b) Make sure that the program pins F14, A2, A3, 2H, 2J, 5J, 8G, 7F, 7G, E1, E2, F1, G1, H1, K1 and 3C of the Left (Right) ADIRU connector D3687A (D3693A) are connected as specified in WDM 34-21-11, WDM 34-21-21.
 - 1) If the program pins are not connected correctly, then do these steps:
 - a) Connect the program pins as specified in the WDM.
 - b) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - c) Do the Repair Confirmation at the end of this task.
 - 2) If the program pins are connected correctly, then continue.
- (2) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message still shows on the CDU and the status code shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

849. Baro 1 Reference Fail - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21045 BARO 1 REFERENCE FAIL
- (2) This message shows when:
 - (a) The ADIRU detects an invalid program pin configuration of the ADIRS.
 - 1) The ADIRU monitors the status of these program pins during power up.
 - 2) The ADR program pins control the Display Options and Configurations.
 - (b) When the maintenance message 34-21045 shows on the CDU, maintenance code 45 also shows on the ISDU.
 - (c) The ADIRU does not receive a 28V AC Reference signal.
 - 1) The 28V AC Standby (STBY) Bus supplies a Servo Reference Voltage to the Left (Right) ADIRU and to the Left AOA Sensor.
 - 2) The 28V AC Transfer (XFR) Bus 2 supplies Servo Reference Voltage to the Right ADIRU and to the Right AOA Sensor.

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- (3) The maintenance message is the same for the Left and Right ADIRS.
 - (a) The Left ADIRS maintenance message shows on the CDU ADIRS L BITE Page.
 - (b) The Right ADIRS maintenance message shows on the CDU ADIRS R BITE Page.
- (4) This maintenance message causes the Status Code 45 to show on the ISDU.
- (5) This maintenance message causes the ALT flag to show on the Altimeter Indicator and the SPD flag to show on the Airspeed Indicator.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)
- (2) Wiring Problem

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) WDM 34-21-11
- (2) WDM 34-21-21
- (3) SSM 34-21-11
- (4) SSM 34-21-21

E. Initial Evaluation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU ADIRS L (R) BITE Page and the associated maintenance code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU ADIRS L (R) BITE Page and the associated maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Remove the applicable ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

- (3) Do a check for 28V AC Reference Voltage at pin 10 of the Left (Right) ADIRU Receptacle, D3687C (D3693C) (WDM 34-21-11, WDM 34-21-21):

- (a) If you do not find 28V AC at pin 10, do these steps:

- 1) Open the applicable circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

- 2) Examine the applicable wiring as follows (WDM 34-21-11, WDM 34-21-21):

LEFT ADIRU

P18 Panel	RECEPTACLE
D41809P	D3687C
pin 4	pin 10

RECEPTACLE
D3687C
pin 4 GD5220-AC

RIGHT ADIRU

P6 Panel	RECEPTACLE
D46065P	D3693C
pin 7	pin 10

RECEPTACLE
D3693C
pin 4 GD5205-AC

- 3) If you find a problem with the wiring, then do these steps:
- a) Repair the wiring.
 - b) Re-install the applicable ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - c) Do the Repair Confirmation at the end of this task.

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- (b) If you find 28V AC Reference Voltage at pin 10, continue.
- (4) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
- (a) If the maintenance message does not show on the CDU and the associated maintenance code does not show on the ISDU, then you corrected the problem.
- (b) If the maintenance message still shows on the CDU and the associated maintenance code shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

850. AOA 1 Reference Fail — Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21046 AOA 1 REFERENCE FAIL
- (2) This message shows when the ADIRU detects an invalid program pin configuration of the ADIRS.
 - (a) The ADIRU monitors the status of these program pins during power up.
 - (b) The ADR program pins control the Display Options and Configurations.
- (3) The maintenance message is the same for the Left and Right ADIRS.
 - (a) The Left ADIRS maintenance message shows on the CDU ADIRS L BITE Page.
 - (b) The Right ADIRS maintenance message shows on the CDU ADIRS R BITE Page.
- (4) The 28v ac standby (stby) bus supplies a servo reference voltage to the Left (Right) ADIRU and to the Left (Right) AOA sensor.
- (5) This message shows when the ADIRU does not receive a 28v ac reference signal.
- (6) This fault causes the status code 24 to show on the ISDU.
- (7) This fault causes the ALT flag to show on the altimeter indicator and the SPD flag to show on the airspeed indicator.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

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D. Related Data

- (1) (WDM 34-21-11)
- (2) (WDM 34-21-21)

E. Initial Evaluation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU ADIRS L (R) BITE Page and the associated maintenance code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU ADIRS L (R) BITE Page and the associated maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the voltage at the ADIRU:
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801..
NOTE: If you open any circuit breakers to do the removal of the Left (Right) ADIRU, you must close them before you do the voltage check below.
 - (b) Do a check for voltage between pin 10 of connector D3687C (D3693C) and ground (WDM 34-21-11, WDM 34-21-21). The correct voltage is 26 VAC.
 - (c) If the correct voltage is not present, then do this check of the wiring:
 - 1) Open the ADIRU LEFT EXC circuit breaker, C425 (ADIRU RIGHT EXC circuit breaker, C426).
 - 2) Do a wiring check between this pin of connector D3687C (D3693C) at the E5-2 rack and this terminal of circuit breaker C425 (C426) WDM 34-21-11, WDM 34-21-21:

LEFT ADIRU

P18 Panel	RECEPTACLE
D41809P	D3687C
pin 4	pin 10

RECEPTACLE	
D3687C	
pin 4	GD5220-AC

RIGHT ADIRU

P6 Panel	RECEPTACLE
D46065P	D3693C
pin 7	pin 10

RECEPTACLE	
D3693C	
pin 4	GD5205-AC

- 3) If you find a problem with the wiring, then do these steps:

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- a) Repair the wiring as specified in the WDM.
 - b) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - c) Close the ADIRU LEFT EXC circuit breaker, C425 (ADIRU RIGHT EXC circuit breaker, C426).
 - d) Do the Repair Confirmation at the end of this task.
- (d) If the wiring is correct and the correct voltage is present, then continue.
- (2) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
- (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message still shows on the CDU and the status code shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

END OF TASK

851. Baro 2 Reference Fail — Fault Isolation

A. Description

- (1) This task is for this maintenance message:
- (a) 34-21047 BARO 2 REFERENCE FAIL
- (2) This message shows when the ADIRU detects an invalid program pin configuration of the ADIRS.
- (a) The ADIRU monitors the status of these program pins during power up.
 - (b) The ADR program pins control the Display Options and Configurations.
- (3) The maintenance message is the same for the Left and Right ADIRS.
- (a) The Left ADIRS maintenance message shows on the CDU ADIRS L BITE Page.
 - (b) The Right ADIRS maintenance message shows on the CDU ADIRS R BITE Page.
- (4) The 28v ac standby (stby) bus supplies a servo reference voltage to the Left (Right) ADIRU and to the Left (Right) AOA sensor.
- (5) This message shows when the ADIRU does not receive a 28v ac reference signal.
- (6) This fault causes the status code 24 to show on the ISDU.
- (7) This fault causes the ALT flag to show on the altimeter indicator and the SPD flag to show on the airspeed indicator.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

D. Related Data

- (1) (WDM 34-21-11)
(2) (WDM 34-21-21)

E. Initial Evaluation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
- (a) If the maintenance message does not show on the CDU ADIRS L (R) BITE Page and the associated maintenance code does not show on the ISDU, then there was an intermittent fault.
- (b) If the maintenance message shows on the CDU ADIRS L (R) BITE Page and the associated maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the voltage at the ADIRU:
- (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
- NOTE: If you open any circuit breakers to do the removal of the Left (Right) ADIRU, you must close them before you do the voltage check below.
- (b) Do a check for voltage between pin 10 of connector D3687C (D3693C) and ground (WDM 34-16-21, WDM 34-21-21). The correct voltage is 26 VAC.
- (c) If the correct voltage is not present, then do this check of the wiring:
- 1) Open the ADIRU LEFT EXC circuit breaker, C425, (ADIRU RIGHT EXC circuit breaker, C426).
 - 2) Do a wiring check between this pin of connector D3687C (C3693C) at the E5-2 rack and this terminal of circuit breaker C425 (C426) WDM 34-16-21, WDM 34-21-21:

LEFT ADIRU

P18 Panel	RECEPTACLE
D41809P	D3687C
pin 4	pin 10

RECEPTACLE
D3687C
pin 4 GD5220-AC

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RIGHT ADIRU

P6 Panel

D46065P

pin 7 pin 10

RECEPTACLE

D3693C

RECEPTACLE

D3693C

pin 4 GD5205-AC

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring as specified in the WDM.
 - b) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - c) Close the ADIRU LEFT EXC circuit breaker, C425 (ADIRU RIGHT EXC circuit breaker, C426).
 - d) Do the Repair Confirmation at the end of this task.
- (d) If the wiring is correct and the correct voltage is present, then continue.
- (2) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message still shows on the CDU and the status code shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

END OF TASK

852. AOA 2 Reference Fail — Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) 34-21048 AOA 2 REFERENCE FAIL
- (2) This message shows when the ADIRU detects an invalid program pin configuration of the ADIRS.
 - (a) The ADIRU monitors the status of these program pins during power up.
 - (b) The ADR program pins control the Display Options and Configurations.
- (3) The maintenance message is the same for the Left and Right ADIRS.
 - (a) The Left ADIRS maintenance message shows on the CDU ADIRS L BITE Page.
 - (b) The Right ADIRS maintenance message shows on the CDU ADIRS R BITE Page.
- (4) The 28v ac standby (stby) bus supplies a servo reference voltage to the Left (Right) ADIRU and to the Left (Right) AOA sensor.
- (5) This message shows when the ADIRU does not receive a 28v ac reference signal.

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- (6) This fault causes the status code 24 to show on the ISDU.
- (7) This fault causes the ALT flag to show on the altimeter indicator and the SPD flag to show on the airspeed indicator.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00426	ADIRU RIGHT EXC

D. Related Data

- (1) (WDM 34-21-11)
- (2) (WDM 34-21-21)

E. Initial Evaluation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU ADIRS L (R) BITE Page and the associated maintenance code does not show on the ISDU, then there was an intermittent fault.
 - (b) If the maintenance message shows on the CDU ADIRS L (R) BITE Page and the associated maintenance code shows on the ISDU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the voltage at the ADIRU:
 - (a) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
NOTE: If you open any circuit breakers to do the removal of the Left (Right) ADIRU, you must close them before you do the voltage check below.
 - (b) Do a check for voltage between pin 10 of connector D3687C (D3693C) and ground (WDM 34-16-21, WDM 34-21-21). The correct voltage is 26 VAC.
 - (c) If the correct voltage is not present, then do this check of the wiring:
 - 1) Open the ADIRU LEFT EXC circuit breaker, C425 (ADIRU RIGHT EXC circuit breaker, C426)..
 - 2) Do a wiring check between this pin of connector D3687C (D3693C) at the E5-2 rack and this terminal of circuit breaker C425 (C426) WDM 34-16-21, WDM 34-21-21:

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LEFT ADIRU

P18 Panel	RECEPTACLE
D41809P	D3687C
pin 4	pin 10

RECEPTACLE
D3687C
pin 4 GD5220-AC

RIGHT ADIRU

P6 Panel	RECEPTACLE
D46065P	D3693C
pin 7	pin 10

RECEPTACLE
D3693C
pin 4 GD5205-AC

- 3) If you find a problem with the wiring, then do these steps:
 - a) Repair the wiring as specified in the WDM.
 - b) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - c) Close the ADIRU LEFT EXC circuit breaker, C425 (ADIRU RIGHT EXC circuit breaker, C426).
 - d) Do the Repair Confirmation at the end of this task.
- (d) If the wiring is correct and the correct voltage is present, then continue.
- (2) Install a new Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the applicable ADIRS, do the ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the maintenance message does not show on the CDU and the status code does not show on the ISDU, then you corrected the problem.
 - (b) If the maintenance message still shows on the CDU and the status code shows on the ISDU, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

854. Pitch Limit Indication does not agree between the Captain's and the First Officer's Display - Fault Isolation

A. Description

- (1) Pitch Limit Indication does not agree between the Captain's and the first Officer's Primary Flight Display (PFD).
- (2) The primary purpose of the Pitch Limit Indication (PLI) symbol is to indicate to the flight crew the limit of maneuver margin during windshear escape or stall recovery maneuvers.

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- (3) The PLI is fixed at 15 degrees when the airplane is on the ground. It becomes active when airspeed exceeds 80 knots and operates until flaps up.

B. Possible Causes

- (1) Left (Right) Angle of Attack Sensor, T433 (T437)
- (2) SMYD 1 (2), M1747 (M1748)
- (3) Stall Management Yaw Damper System Maintenance Messages
- (4) Flight Management Computer System Maintenance Messages

C. Related Data

- (1) SSM 27-32-11
- (2) SSM 27-32-12
- (3) SSM 34-21-22

D. Fault Isolation Procedure

- (1) Do a Bite Test for SMYD 1 (2), M1747 (M1748). This is the task: Stall Management Yaw Damper (SMYD) BITE Test - Existing Faults, AMM TASK 27-32-00-740-801
 - (a) Do the Repair Confirmation at the end of this task.
- (2) Do a test of the Left (Right) AOA sensor, T433 (T437). This is the task: Alpha Vane-1 Output Problems - Fault Isolation, 22-11 TASK 823.
 - (a) If you find a problem during the test, then do these steps:
 - 1) Replace the Left (Right) AOA sensor, T433 (T437). These are the tasks:
 - Angle of Attack Sensor Removal, AMM TASK 34-21-05-000-801
 - Angle of Attack Sensor Installation, AMM TASK 34-21-05-400-801
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find a problem during the test, then continue.
- (3) Look for Existing Faults, 27 Flight Controls Stall Management Yaw Damper System for related maintenance messages.
 - (a) If you find any related maintenance messages, then do these steps:
 - 1) Do the Fault Isolation Task for each related maintenance message.
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find related maintenance messages, then continue.
- (4) Look for Existing Faults, 34 Flight Management Computer System for related maintenance messages.
 - (a) If you find any related maintenance messages, then do these steps:
 - 1) Do the Fault Isolation Task for each related maintenance message.
 - 2) Do the Repair Confirmation at the end of this task.

E. Repair Confirmation

- (1) Monitor the airplane during the next flight(s).
 - (a) If the observed fault symptom does not occur on the subsequent flight(s), then you corrected the problem.
 - (b) If the observed fault symptom occurs again on the next flight(s), then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

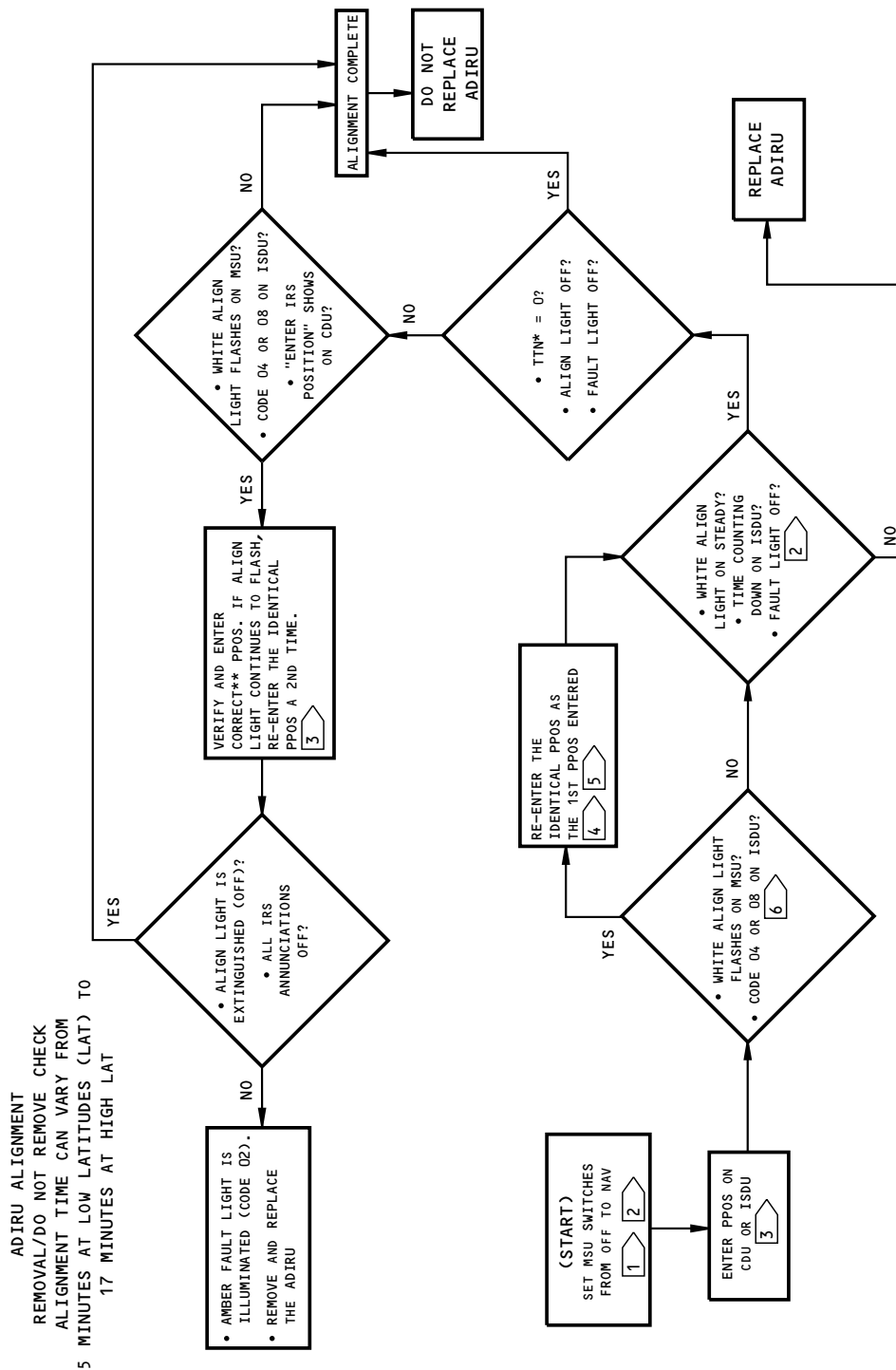
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NOTE: * TTN = TIME-TO-NAV OR TIME-TO-ALIGN = THE COUNT DOWN TIME REMAINING IN MINUTE(S) FOR THE ADIRU TO COMPLETE ITS ALIGNMENT AND ENTER NAVIGATION MODE.

** IF THE PREVIOUS ENTRIES FOR LAT/LONG WERE ENTERED MANUALLY AND THEY WERE INCORRECT LOCATIONS, THIS IS THE LAST CHANCE TO ENTER A VALID/CORRECT LOCATION. ENTERING AN INCORRECT POSITION AT THIS POINT WILL RESULT IN AN 02 IR FAULT, FALSELY INDICATING THE ADIRU'S THE CAUSE FOR AN ALIGNMENT FAILURE.

ADIRU Alignment Fault Isolation Flow Chart
Figure 301/34-21-00-990-804 (Sheet 1 of 2)

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- 1 WINDY CONDITION RECOMMENDATION:
DURING WINDY, GUSTY CONDITIONS, PERFORM ALIGNMENT WITH THE AIRPLANE POSITIONED INTO THE HEAD WIND TO MINIMIZE THE YAWING MOTION. IF RE-POSITIONING AIRPLANE IS NOT POSSIBLE, ROTATE THE MSU SWITCH IN NAV POSITION, BUT DON'T ENTER PRESENT POSITION AT THIS TIME, AND WAIT AT LEAST 17 MINUTES EVEN THOUGH THE ALIGN LIGHT CONTINUES TO FLASH AND THE ALIGNMENT COUNTDOWN TIMER RUNS DOWN TO ONE (1) ON ISDU DISPLAY (THIS ENABLES THE ADIRU TO REACH THE MAXIMUM SETTLING TIME, THUS MINIMIZING POTENTIAL WIND DISTURBANCE ERRORS). AFTER 17 MINUTES HAS PASSED, ENTER THE PRESENT POSITION. ADIRU WILL GO INTO NAV AND ALIGN LIGHT SHOULD EXTINGUISH.
- 2 EXCESSIVE MOTION (CODE 03):
THE ADIRU MAY DETECT EXCESSIVE MOTION AT ANYTIME DURING ALIGNMENT. ALIGNMENT STOPS WHEN EXCESSIVE MOTION IS DETECTED, AND A FULL ALIGNMENT WILL START AGAIN 30 SECONDS AFTER EXCESSIVE MOTION STOPS. EXCESSIVE MOTION CAN HAPPEN MULTIPLE TIMES. IF VALID PRESENT POSITION WAS ENTERED AND ACCEPTED BEFORE EXCESSIVE MOTION WAS DETECTED, POSITION DOES NOT NEED TO BE RE-ENTERED. IF THE ALIGN LIGHT IS FLASHING, POSITION NEEDS TO BE RE-ENTERED. THE TIME-TO-NAV OR TIME-TO-ALIGN WILL RESET TO THE FULL ALIGNMENT TIME, WHICH CAN BE BETWEEN 5 AND 17 MINUTES, AND WILL BEGIN TO COUNT DOWN WHEN ALIGNMENT RESTARTS. THE ALIGN LIGHT WILL BE ON STEADY AND THE TIME-TO-NAV WILL BE DECREMENTING DURING ALIGNMENT.
- 3 DON'T USE AN AIRPORT FROM THE FMC NAV DATABASE AS PPOS BECAUSE IT DOESN'T ALWAYS HAVE SUFFICIENT ACCURACY THAT REPRESENT THE PRECISE LOCATION OF AIRPLANE. ALWAYS USE GATE POSITION OR GPS POSITION FOR PPOS. THE GPS POSITION, IF AVAILABLE, CAN BE OBTAINED FROM FMCS/CDU POS REF PAGE 2/3 OR FROM SMARTPHONE APPLICATION AS NEEDED (I.E. GOOGLE MAPS).
- 4 DO NOT CYCLE ADIRU CIRCUIT BREAKERS AT THIS POINT.
- 5 CODE 08 IS DISPLAYED ON ISDU IF POSITION NEEDS TO BE ENTERED OR RE-ENTERED.
- 6 THE PRESENT POSITION ENTERED MUST BE WITHIN 1 DEGREE OF THE LAT/LONG STORED AT THE END OF THE LAST POWER CYCLE. IF THE ADIRU IS A REPLACEMENT FROM ANOTHER GEOGRAPHICAL LOCATION WITH >1 DEGREE LAT/LONG POSITION DIFFERENCE, OR IF BREAKERS WERE PULLED <30 SECONDS AFTER MSU SWITCHED OFF ON LAST POWER CYCLE, THE STORED POSITION WILL NOT COMPARE TO THE CURRENT PPOS ENTERED.

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ADIRU Alignment Fault Isolation Flow Chart Figure 301/34-21-00-990-804 (Sheet 2 of 2)

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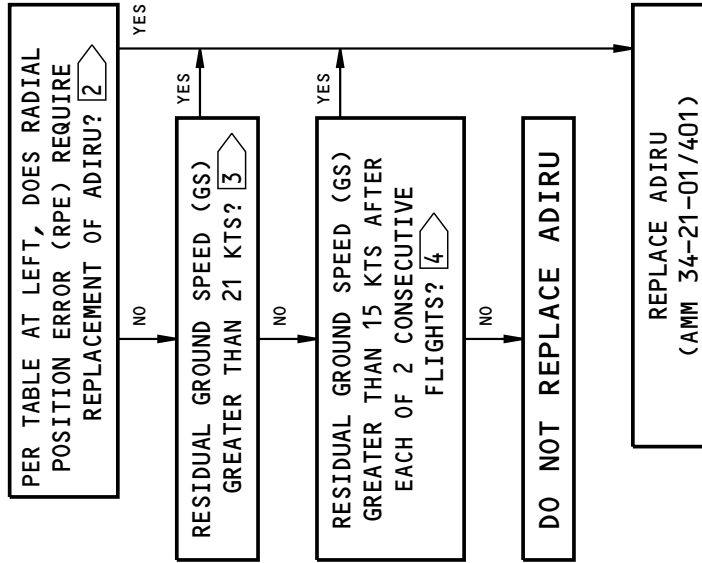
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**ADIRU RESIDUAL GROUND SPEED AND RADIAL POSITION ERROR
REMOVE/DO NOT REMOVE CHECK**

FOR REPORT OF MAP SHIFT OR
RESIDUAL GROUND SPEED (GS) OR
RADIAL POSITION ERROR (RPE) ON
THE ISDU OR FMC CDU POS REF AND
POS SHIFT PAGES CHECK:

IF NAV TIME (HR) SINCE LAST FULL ALIGNMENT IS: 1	DO NOT REPLACE ADIRU IF RADIAL POSITION ERROR (RPE) IS LESS THAN:	
	RPE FOR A SINGLE FLIGHT (NM)	RPE ON EACH OF 2 CONSECUTIVE FLIGHTS (NM)
LESS THAN 1	7	5
LESS THAN 2	10	7
LESS THAN 3	11	8
LESS THAN 4	14	10
LESS THAN 5	18	13
LESS THAN 6	21	15
LESS THAN 7	25	18
LESS THAN 8	28	20
LESS THAN 9	32	23
LESS THAN 10	34	24
10 OR MORE	35	25



- 1 NAV TIME STARTS UPON SWITCHING TO NAV MODE AFTER FULL ALIGNMENT, INCLUDES GROUND TIME IN NAV MODE. (DO NOT USE POWER-ON OR FLIGHT TIME).
- 2 RADIAL POSITION ERROR DATA CAN BE ACCESSED ON THE MCDU MENU PAGE BY SELECTING THE FOLLOWING:
<FMC><INDEX><POS><NEXT PAGE><NEXT PAGE>.
- 3 GROUND SPEED DATA CAN BE ACCESSED ON THE MCDU MENU PAGE BY SELECTING THE FOLLOWING:
<FMC><INDEX><POS><NEXT PAGE>.
- 4 CONSECUTIVE FLIGHTS ARE ONE FLIGHT LEG IMMEDIATELY FOLLOWED BY ANOTHER WITH A FULL ALIGNMENT IN BETWEEN.

ADIRU Performance Fault Isolation Flow Chart
Figure 302/34-21-00-990-806

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801. Standby Magnetic Compass Error - Fault Isolation

A. Description

- (1) This task is for this observed fault:
 - (a) The standby magnetic compass indicates an incorrect magnetic heading.
 - (b) The magnetic heading on the standby magnetic compass is different more than ± 10 degrees (FAA certification) or ± 5 degrees (CAA and EASA certification) of the magnetic heading on the EHSI display.

B. Possible Causes

- (1) Standby magnetic compass, N74.
- (2) Unwanted source of magnetization influencing the compass reading.

C. Initial Evaluation

- (1) If the standby magnetic compass heading agrees with the magnetic heading on the EHSI, then there was an intermittent fault.
- (2) If the standby magnetic compass heading does not agree with the magnetic heading on the EHSI, then do the Fault Isolation Procedure below.

D. Fault Isolation Procedure

- (1) Make sure that the Air Data Inertial Reference System is aligned and in the NAV mode.
 - (a) Do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - 1) If there is a maintenance message that relates to the ADIRU internal fault, then go to the FIM task for that message.
 - 2) If there are no maintenance messages that relate to the ADIRU, then continue.
- (2) Do this task: Formal Compass Swing and Compass Card - Airplane Inertial Reference System (IRS) Option, AMM TASK 34-23-00-820-802 or Compass Calibration Tool – Master Compass Option, AMM TASK 34-23-00-820-801.
 - (a) Do the Repair Confirmation at the end of this task.
- (3) Do this task: Standby Magnetic Compass - Degaussing, AMM TASK 34-23-00-820-803.
 - (a) Do the Repair Confirmation at the end of this task.
- (4) Replace the standby magnetic compass. These are the tasks:
 - Standby Magnetic Compass Removal, AMM TASK 34-23-00-000-801
 - Standby Magnetic Compass Installation, AMM TASK 34-23-00-400-801
 - (a) If the test in the installation task for the standby magnetic compass is satisfactory, then you corrected the fault.

E. Repair Confirmation

- (1) If the standby magnetic compass heading agrees with the magnetic heading on the EHSI, then you corrected the fault.
- (2) If the standby magnetic compass heading does not agree with the magnetic heading on the EHSI, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

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802. Standby Magnetic Compass Light Not Illuminated

A. Description

- (1) This task is for this observed fault:
 - (a) The standby magnetic compass light not illuminate.

B. Possible Causes

- (1) Standby magnetic light
- (2) Wiring

C. Related Data

- (1) WDM 33-14-12

D. Initial Evaluation

- (1) Set the compass light switch to ON and then to BRIGHT.
 - (a) Make sure the standby magnetic compass light is on and bright.
 - (b) If the standby magnetic compass light is on and bright, then there was an intermittent fault.
 - (c) If the standby magnetic compass light is not on and bright, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) Replace the standby magnetic compass light.

These are the tasks:

Standby Magnetic Compass Light - Removal, AMM TASK 34-23-01-000-802,
Standby Magnetic Compass Light - Installation, AMM TASK 34-23-01-400-802.

 - (a) If the test in the installation task for the standby magnetic compass is satisfactory, then you corrected the fault.
 - (b) If the test in the installation task for the standby magnetic compass is not satisfactory, then continue.
- (2) Do a voltage check of the standby compass indicator:
 - (a) Set the compass light switch to off.
 - (b) Remove the standby compass indicator. To remove it, do this task: Standby Magnetic Compass Removal, AMM TASK 34-23-00-000-801.
 - (c) Set the compass light switch to ON and BRIGHT.
 - (d) Make sure that 28vdc is present at pin A1 of connector D918.
 - (e) Set the compass light switch to DIM.
 - (f) Make sure that 14vdc is present at pin A1 of connector D918.
 - (g) Set the compass light switch to OFF.
 - (h) Make sure the outer ring (connector shell) of the D918 connector has continuity to ground.
 - (i) If the D918 connector shell does not have continuity to ground, then do these steps:
 - 1) Do a check of the GD264 and make sure the wire W2508–2002B-20 is properly inserted into the ground block.
 - 2) If the wire W2508–2002B-20 is properly connected, then do these steps:

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- a) Do a continuity check between D918 connector and GD264.
 - b) If there is continuity between D918 connector and GD264, then do these steps:
 - <1> Install a new standby compass indicator. To install it, do this task: Standby Magnetic Compass Installation, AMM TASK 34-23-00-400-801.
 - c) If there is no continuity between D918 connector and GD26, then do these steps:
 - <1> Repair the wiring.
 - <2> Do the Repair Confirmation Procedure below.
- 3) If the wire W2508-2002B-20 is not properly connected, then do these steps:
- a) Repair the wiring.
 - b) Do the Repair Confirmation Procedure below.
- (j) If the D918 connector shell has continuity, then do these steps:
- 1) Install a new standby compass indicator. To install it, do this task: Standby Magnetic Compass Installation, AMM TASK 34-23-00-400-801.
 - 2) Do the Repair Confirmation Procedure below.

F. Repair Confirmation Procedure

- (1) Set the compass light switch to ON and then to BRIGHT.
- (a) Make sure the standby magnetic compass lights are on and bright.

———— **END OF TASK** ————

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804. Integrated Standby Flight Display Blank - Fault Isolation

A. Description

- (1) The Integrated Standby Flight Display (ISFD) is blank.

B. Possible Causes

- (1) Power loss
(2) Integrated Standby Flight Display, N226
(3) ISFD Dedicated Battery System, M2100

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (a) Front of the ISFD Dedicated Battery System, M2100, E4-1
1) DBC Output Breaker

D. Related Data

- (1) SSM 34-24-15
(2) WDM 34-24-15

E. Initial Evaluation

- (1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (a) Front of the ISFD Dedicated Battery System, M2100, E4-1
1) DBC Output Breaker
(2) If the Integrated Standby Flight Display shows, then there was an intermittent problem.
(3) If the Integrated Standby Flight Display is blank, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the Integrated Standby Flight Display, N226. These are the tasks:
- Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801,
 - Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801.
- (a) If the installation task for the Integrated Standby Flight Display is satisfactory and the display shows, then you corrected the problem.
(b) If the Integrated Standby Flight Display is blank, then continue.
- (2) Replace the ISFD Dedicated Battery System, M2100. These are the tasks:
- ISFD Dedicated Battery Charger Removal, AMM TASK 34-24-03-000-801,
 - ISFD Dedicated Battery Charger Installation, AMM TASK 34-24-03-400-801
- (a) If the test in the installation task for the ISFD Dedicated Battery System is satisfactory and the Integrated Standby Flight Display shows, then you corrected the problem.
(b) If the Integrated Standby Flight Display is blank, then continue.

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(3) Do this check of the wiring between the circuit breaker C1551 and the Integrated Standby Flight Display, N226 as follows:

- (a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (b) Remove the Integrated Standby Flight Display. This is the task: Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801.
- (c) Remove the ISFD Dedicated Battery System. This is the task: ISFD Dedicated Battery Charger Removal, AMM TASK 34-24-03-000-801.
- (d) Do a wiring check as follows (WDM 34-24-15):

D10853 **D11281**
pin D pin 9

D11281 **Circuit Breaker**
pin 6 C01551

- 1) Repair the problems that you find and continue.
- (e) Re-install the ISFD Dedicated Battery System, M2100. This is the task: ISFD Dedicated Battery Charger Installation, AMM TASK 34-24-03-400-801.
- (f) Re-install the Integrated Standby Flight Display, N226. This is the task: Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801.
- (g) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (h) If the test in the installation task for the Integrated Standby Flight Display is satisfactory and the display shows, then you corrected the problem.

———— **END OF TASK** ————

805. ALT Flag on Integrated Standby Flight Display - Fault Isolation

A. Description

- (1) The ALT flag shows on the Integrated Standby Flight Display (ISFD) when the altitude data is invalid.

B. Possible Causes

- (1) Alternate static system.
- (2) Integrated Standby Flight Display (ISFD), N226.

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C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

D. Related Data

- (1) SSM 34-24-15
- (2) WDM 34-24-15

E. Initial Evaluation

- (1) Do this task: Integrated Standby Flight Display - Operational Test, AMM TASK 34-24-02-710-801.
 - (a) If the ALT flag does not show on the ISFD, then you corrected the fault.
 - (b) If the ALT flag shows on the ISFD, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) If the airplane was parked in heavy rain or a high moisture environment, then do a check of the alternate Static Port. This is the task: Static Port - Detailed Inspection, AMM TASK 34-11-02-200-803.

NOTE: The Detailed Inspection of the Static Port has the “thumb swipe” steps to clear water surface tension at the Static Port, allowing the water to drain.

 - (a) If you find moisture in the Alternate Static System, then drain the Alternate Static System. This is the task: Pitot Static System - Draining, AMM TASK 34-11-00-680-801.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find moisture in the Alternate Static System, then continue.
- (2) Do a leak test of the alternate static systems:
 - (a) Do this task: Alternate Static System Low-range Leak Test, AMM TASK 34-11-00-790-808.
 - (b) If the alternate static system has a leak, then do these steps:
 - 1) Repair the leak.
 - 2) Do the Repair Confirmation at the end of this task.
 - (c) If the alternate static system does not have leaks, then continue.
- (3) Flush the Alternate Pitot and then Static Systems. This is the task: Pitot Static System - Flushing, AMM TASK 34-11-00-170-802.
 - (a) Do the Repair Confirmation at the end of this task.
- (4) Replace the Integrated Standby Flight Display (ISFD), N226. These are the tasks:
 - Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801
 - Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: Integrated Standby Flight Display - Operational Test, AMM TASK 34-24-02-710-801.
 - (a) If the ALT flag does not show on the ISFD, then you corrected the fault.

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- (b) If the ALT flag shows on the ISFD, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

806. ATT Flag on Integrated Standby Flight Display - Fault Isolation

A. Description

- (1) The ATT flag shows when the integrated standby flight display shows an invalid attitude.

B. Possible Causes

- (1) Integrated standby flight display, N226.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

D. Related Data

- (1) (SSM 34-24-15).
(2) (WDM 34-24-15).

E. Initial Evaluation

- (1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (2) If the ATT flag does not show on the integrated standby flight display, then there was an intermittent fault.
(3) If the ATT flag shows on the integrated standby flight display, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the integrated standby flight display, N226.

These are the tasks:

Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801,

Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801.

- (a) If the installation task for the integrated standby flight display is satisfactory and the ATT flag does not show, then you corrected the fault.

————— **END OF TASK** —————

807. WAIT ATT Flag on the Integrated Standby Flight Display - Fault Isolation

A. Description

- (1) The WAIT ATT message shows when there is a temporary loss of attitude function. The attitude function will automatically come back. No maintenance action is necessary.

————— **END OF TASK** —————

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808. G/S or LOC Flag on the Integrated Standby Flight Display - Fault Isolation

A. Description

- (1) The G/S or the LOC flag shows when there is a loss of glide slope or localizer functions.

B. Possible Causes

- (1) Instrument Landing System.
(2) Integrated Standby Flight Display.

C. Related Data

- (1) (SSM 34-24-15).
(2) (WDM 34-24-15).

D. Initial Evaluation

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (2) If the G/S or LOC flag does not show on the integrated standby flight display, then there was an intermittent fault.
(3) If the G/S or LOC flag shows on the integrated standby flight display, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
(a) Repair the problems that you find.
(b) If the G/S or LOC flag does not show on the integrated standby flight display and the attitude is displayed, then you have corrected the fault.
(c) If the G/S or LOC flag shows on the integrated standby flight display, then continue.
(2) Replace the integrated standby flight display, N226.
These are the tasks:
Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801,
Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801.
(a) If the G/S or LOC flag does not show on the integrated standby flight display and the attitude is displayed, then you have corrected the fault.
(b) If the G/S or LOC flag shows on the integrated standby flight display, then continue.
(3) Do this check of wiring between the integrated standby flight display and the multi-mode receiver.
(a) Remove the multi-mode receiver, M2104. To remove it, do this task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.
(b) Remove the integrated standby flight display, N226. To remove it, do this task: Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801.

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- (c) Do a wiring check between these pins of connector D10719B for the MMR and connector D10853 for the integrated standby flight display (WDM 34-24-15):

D10719B	D10853
pin G1	pin A
pin H1	pin W

- (d) Repair the problems that you find.
- (e) Re-install the multi-mode receiver, M2104. To install it, do this task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
- (f) Re-install the integrated standby flight display, N226. To install it, do this task: Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801.
- (g) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (h) If the tests in the installation tasks for the instrument landing system and the integrated standby flight display are satisfactory, and the G/S or LOC flag does not show on the integrated standby flight display, then you corrected the fault.

END OF TASK

809. HDG Flag on the Integrated Standby Flight Display - Fault Isolation

A. Description

- (1) The HDG flag shows when there is a loss of magnetic heading function.

B. Possible Causes

- (1) ADIRU.
- (2) Integrated Standby Flight Display.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD
E	8	C00425	ADIRU LEFT EXC

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D. Related Data

- (1) (SSM 34-24-15).
- (2) (WDM 34-24-15).

E. Initial Evaluation

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD
E	8	C00425	ADIRU LEFT EXC

- (2) If the HDG flag does not show on the integrated standby flight display, then there was an intermittent fault.
- (3) If the HDG flag shows on the integrated standby flight display, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, AMM TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, AMM TASK 34-21-00-820-801.
 - (a) If the HDG flag does not show on the integrated standby flight display, then you corrected the fault.
 - (b) If the HDG flag shows on the integrated standby flight display, then continue.
- (2) Replace the left air data inertial reference unit, M1749.

These are the tasks:

Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801,

Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.

- (a) If the test in the installation task for the air data inertial reference unit is satisfactory and the HDG flag does not show on the integrated standby flight display, then you corrected the fault.
 - (b) If the HDG flag shows on the integrated standby flight display, then continue.
- (3) Replace the integrated standby flight display, N226.

These are the tasks:

Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801,

Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801.

- (a) If the test in the installation task for the integrated standby flight display is satisfactory and the HDG flag does not show, then you corrected the fault.
 - (b) If the HDG flag shows on the integrated standby flight display, then continue.
- (4) Do this check of the wiring between the left air data inertial reference unit and the integrated standby flight display:

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- (a) Remove the air data inertial reference unit, M1749. To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
- (b) Remove the integrated standby flight display, N226. To remove it, do this task: Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801.
- (c) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (d) Do a wiring check between these pins of connector D3687B for the air data inertial reference unit and connector D10853 for the integrated standby flight display (WDM 34-24-15):

D3687B		D10853
pin G7	.....	pin T
pin G8	.....	pin S

- (e) Repair the problems that you find.
- (f) Re-install the air data inertial reference unit. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (g) Re-install the integrated standby flight display. To install it, do this task: Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801.
- (h) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (i) If the tests in the installation tasks for the air data inertial reference unit and the integrated standby flight display are satisfactory, and the HDG flag does not show on the integrated standby flight display, then you corrected the fault.

———— **END OF TASK** ————

810. OUT OF ORDER on the Integrated Standby Flight Display - Fault Isolation

A. Description

- (1) OUT OF ORDER shows when there is a complete loss of integrated standby flight display function.

B. Possible Causes

- (1) Integrated standby flight display.

C. Related Data

- (1) (SSM 34-24-15).
- (2) (WDM 34-24-15).

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D. Initial Evaluation

- (1) Open and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (a) If OUT OF ORDER does not show on the integrated standby flight display, then there was an intermittent fault.
- (b) If OUT OF ORDER shows on the integrated standby flight display, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) Open and close this circuit breaker on the front of the ISFD Dedicated Battery Charger, M2100, E4-1:
- DBC Output Breaker
- (a) If the test in the installation task for the integrated standby flight display is satisfactory and OUT OF ORDER message does not show on the integrated standby flight display, then you corrected the fault.
- (b) If the OUT OF ORDER message shown on the integrated standby flight display, then continue.
- (2) Replace the integrated standby flight display, N226. These are the tasks:
- Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801
 - Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801
- (a) If the test in the installation task for the integrated standby flight display is satisfactory and the OUT OF ORDER message does not show on the integrated standby flight display, then you corrected the fault.

————— **END OF TASK** —————

811. PROGRAM PIN ERROR on the Integrated Standby Flight Display - Fault Isolation

A. Description

- (1) PROGRAM PIN ERROR shows when the program pin parity is incorrect.

B. Possible Causes

- (1) Integrated Standby Flight Display Program Pins.
- (2) Integrated Standby Flight Display, N226.

C. Related Data

- (1) (SSM 34-24-15).
- (2) (WDM 34-24-15).

D. Initial Evaluation

- (1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

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- (2) If PROGRAM PIN ERROR does not show on the integrated standby flight display, then there was an intermittent fault.
- (3) If PROGRAM PIN ERROR shows on the integrated standby flight display, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) Do this check of the integrated standby flight display program pins:
 - (a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (b) Remove the integrated standby flight display, N226. To remove it, do this task: Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801.
- (c) Do a continuity check of the wiring between these pins of connector D10853 (WDM 34-24-15):

D10853		D10853
pin G	.....	pin D
pin G	.....	pin K

- (d) Make sure that these program pins of connector D10853 are open:
 - 1) B, C, E, F, M, N, P, S, Z.
- (e) Re-install the integrated standby flight display. To install it, do this task: Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801.
- (f) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (g) If the test in the installation task for the integrated standby flight display is satisfactory and PROGRAM PIN ERROR does not show, then you corrected the fault.
 - (h) If PROGRAM PIN ERROR shows on the integrated standby flight display, then continue.
- (2) Replace the integrated standby flight display, N226.

These are the tasks:

Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801,

Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801.

- (a) If the test in the installation task is satisfactory and the PROGRAM PIN ERROR does not show on the integrated standby flight display, then you corrected the fault.

————— **END OF TASK** —————

812. SPD Flag on the Integrated Standby Flight Display - Fault Isolation

A. Description

- (1) The SPD flag shows when there is a loss of standby airspeed function.

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B. Possible Causes

- (1) Alternate Pitot system.
- (2) Alternate Static system.
- (3) Integrated Standby Flight Display (ISFD), N226.

C. Related Data

- (1) SSM 34-24-15
- (2) WDM 34-24-15

D. Initial Evaluation

- (1) Do this task: Integrated Standby Flight Display - Operational Test, AMM TASK 34-24-02-710-801.
 - (a) If the SPD flag does not show on the ISFD, then you have corrected the fault.
 - (b) If the SPD flag shows on the ISFD, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) If the airplane was parked in heavy rain or a high moisture environment, then do a check of the alternate Static Port. This is the task: Static Port - Detailed Inspection, AMM TASK 34-11-02-200-803.

NOTE: The Detailed Inspection of the Static Port has the “thumb swipe” steps to clear water surface tension at the Static Port, allowing the water to drain.

 - (a) If you find moisture in the Alternate Static System, then drain the Alternate Static System. This is the task: Pitot Static System - Draining, AMM TASK 34-11-00-680-801.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find moisture in the Alternate Static System, then continue.
- (2) Do a leak test of the alternate pitot and static systems:
 - (a) Do this task: Alternate Pitot System Leak Test, AMM TASK 34-11-00-790-812.
 - (b) Do this task: Alternate Static System Low-range Leak Test, AMM TASK 34-11-00-790-808.
 - (c) If the alternate Pitot or alternate Static systems have a leak, then do these steps:
 - 1) Repair the leak.
 - 2) Do the Repair Confirmation at the end of this task.
 - (d) If the alternate Pitot and alternate Static systems do not have any leaks, then continue.
- (3) Flush the alternate Pitot and Static systems. This is the task: Pitot Static System - Flushing, AMM TASK 34-11-00-170-802.
 - (a) Do the Repair Confirmation at the end of this task.
- (4) Replace the Integrated Standby Flight Display (ISFD), N226. These are the tasks
 - Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801
 - Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801
 - (a) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this task: Integrated Standby Flight Display - Operational Test, AMM TASK 34-24-02-710-801.
 - (a) If the SPD flag does not show on the ISFD, then you have corrected the fault.

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- (b) If the SPD flag shows on the ISFD, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

813. Altitude Difference Between Integrated Standby Flight Display and Common Display System - Fault Isolation

A. Description

- (1) Altitude indications are different between the integrated standby flight display (ISFD) and the common display system (CDS).

B. Possible Causes

- (1) Integrated Standby Flight Display, N226.
(2) Alternate Pitot system.
(3) Alternate Static system.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

D. Related Data

- (1) SSM 34-24-15
(2) WDM 34-24-15

E. Initial Evaluation

- (1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (2) Maintenance action is required for reports of altitude differences between the ISFD and the CDS, if all of the following conditions are true:
- (a) The altitude in the report is greater than 10,000 feet (3048 meters).
(b) The Mach number in the report is greater than 0.4 Mach.
(c) The difference in altitude between the ISFD and the CDS is more than 400 feet (122 meters).
- (3) If all of the conditions above are true, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the integrated standby flight display, N226. These are the tasks:
- Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801
 - Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801
- (a) If the installation task for the integrated standby flight display is satisfactory and all of the conditions in the Initial Evaluation are not true, then you corrected the fault.
- (b) If all of the conditions in the Initial Evaluation above are true, then continue.

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- (2) Flush the alternate Pitot and Static systems:
 - (a) Do this task: Pitot Static System - Flushing, AMM TASK 34-11-00-170-802.
- (3) Do a leak test of the alternate Pitot and Static systems:
 - (a) Do this task: Alternate Pitot System Leak Test, AMM TASK 34-11-00-790-812.
 - (b) Do this task: Alternate Static System Low-range Leak Test, AMM TASK 34-11-00-790-808.
 - (c) If the alternate Pitot or alternate Static system has a leak, then do these steps:
 - 1) Repair the leak.
 - 2) Do this task: Integrated Standby Flight Display - System Test, AMM TASK 34-24-02-730-801.
 - a) If the operational test is satisfactory and all of the conditions in the Initial Evaluation are not true, then you corrected the fault.

————— **END OF TASK** —————

814. Integrated Standby Flight Display - Attitude Display Difference With No Flag - Fault Isolation

A. Description

- (1) The attitude shown on the integrated standby flight display following takeoff is different from the known attitude, and no flag is displayed.

B. Possible Causes

- (1) Movement of the airplane has occurred during the power up and automatic alignment of the integrated standby flight display, N226.

NOTE: The ISFD alignment occurs automatically when the ISFD is powered up, and is indicated by the ATT and INIT 90s messages.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

D. Related Data

- (1) (SSM 34-24-15).
- (2) (WDM 34-24-15).

E. Initial Evaluation

- (1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (2) For a reported incorrect attitude shown on the integrated standby flight display while in flight, and no flag displayed, do the Fault Isolation Procedure below.

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F. Fault Isolation Procedure



DO NOT MOVE THE AIRPLANE WHILE THE ISFD SHOWS THE YELLOW "ATT" AND "INIT90S" MESSAGES. IF YOU MOVE THE AIRPLANE DURING THE ISFD SYSTEM POWER-UP AND INITIALIZATION ALIGNMENT, THE ISFD MAY DISPLAY INCORRECT ATTITUDE INFORMATION WITH NO ATT FLAG OR MESSAGE.

- (1) Do an electrical power cycle of the integrated standby flight display by using one of these procedures:
 - (a) Operate the circuit breaker on the front of the ISFD dedicated battery charger, M2100, E4-1:
 - 1) Open the DBC Output breaker
 - 2) Close the DBC Output breaker
 - (b) Operate the ISFD circuit breaker and the battery switch:
 - 1) Open this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- 2) Open the S5 battery switch on panel P5-13, electrical meter module.
- 3) Close the S5 battery switch on panel P5-13, electrical meter module.
- 4) Close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (c) Cycle electrical power.

These are the tasks:

Remove Electrical Power, AMM TASK 24-22-00-860-812,

Supply Electrical Power, AMM TASK 24-22-00-860-811.
- (2) If the next flight reports incorrect attitude shown on the integrated standby flight display while in flight, and no flag displayed, replace the integrated standby flight display.

These are the tasks:

Integrated Standby Flight Display Removal, AMM TASK 34-24-02-000-801,

Integrated Standby Flight Display Installation, AMM TASK 34-24-02-400-801.
- (3) If the next flight does not produce a report that the integrated standby flight attitude display following takeoff is different from the known attitude and no flag is displayed, you corrected the fault.

————— **END OF TASK** —————

815. ISFD Dedicated Battery System FAULT Light is ON - Fault Isolation

A. Description

- (1) The FAULT Light on the ISFD Dedicated Battery System Front Panel is ON.

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B. Possible Causes

- (1) ISFD Dedicated Battery Pack
 - (a) Voltage Levels in the Battery Cells are not equal.
- (2) ISFD Dedicated Battery System, M2100
 - (a) Battery Charger Operating Temperature is more than 180°F (82°C) or less than 5°F (-15°C).
 - (b) Battery Charger does not supply the correct Output Voltage.
- (3) Electrical Meters, Battery and Galley PWR Module, P5-13
- (4) Wiring

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (2) Front of the Dedicated Battery System, M2100, E4-1
 - DBC Output Breaker

D. Related Data

- (1) WDM 34-24-15
- (2) SSM 34-24-15

E. Initial Evaluation

- (1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (2) Make sure that this circuit breaker is closed:
 - Front of the Dedicated Battery System, M2100, E4-1: DBC Output Breaker
- (3) If the FAULT Light on the ISFD Dedicated Battery System Front Panel is not ON, then there was an intermittent fault.
- (4) If the FAULT Light on the ISFD Dedicated Battery System Front Panel is ON, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the ISFD Dedicated Battery Pack. These are the task:
 - ISFD Dedicated Battery Charger Removal, AMM TASK 34-24-03-000-801
 - ISFD Dedicated Battery Charger Installation, AMM TASK 34-24-03-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (2) Remove the ISFD Dedicated Battery System. This is the task: ISFD Dedicated Battery Charger Removal, AMM TASK 34-24-03-000-801.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (4) Do a check for 28V DC at pin 6 of connector D11281 (WDM 34-24-15).

- (a) If you find 28V DC, replace the ISFD Dedicated Battery System. These are the tasks:

- ISFD Dedicated Battery Charger Removal, AMM TASK 34-24-03-000-801
- ISFD Dedicated Battery Charger Installation, AMM TASK 34-24-03-400-801

- 1) Do the Repair Confirmation at the end of this task.

- (b) If you do not find 28V DC at pin 6, then do these steps:

- 1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- 2) Examine the wiring between the ISFD BAT CHGR circuit breaker, C1551 and the ISFD Dedicated Battery System as follows (WDM 34-24-15):

	ISFD DEDICATED BAT SYSTEM D11281
P18-2 PNL C1551	
term =L	pin 6

**ISFD DED BAT
SYS
D11281**

pin 4	GD4103-DC
pin 2	GD4108-ST

- a) If you find a problem in the wiring, do these steps:

<1> Repair the wiring.

<2> Re-install the ISFD Dedicated Battery System. This is the task: ISFD Dedicated Battery Charger Installation, AMM TASK 34-24-03-400-801.

<3> Do the Repair Confirmation at the end of this task.

- b) If the wiring between the ISFD BAT CHGR circuit breaker, C1551 and the ISFD Dedicated Battery System is OK, then continue.

- (5) Do this wiring check:

- (a) On the Overhead Panel, P5, remove the Electrical Meters, Battery and Galley PWR Module. This is the task: Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801.

- (b) Examine the wiring between the Electrical Meters, Battery & Galley PWR Module and the ISFD Dedicated Battery System as follows (WDM 34-24-15):

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**P15-13 PNL
ELEC MTRS,
BAT & GALLEY
PWR MODULE**

**ISFD
DEDICATED
BAT SYSTEM**

pin 44 pin 3

D11281

**P15-13 PNL
ELEC MTRS,
BAT & GALLEY
PWR MODULE**

pin 45 GD519-DC

- 1) If you find a problem in the wiring, do these steps:
 - a) Repair the wiring.
 - b) Re-install the ISFD Dedicated Battery System. This is the task: ISFD Dedicated Battery Charger Installation, AMM TASK 34-24-03-400-801.
 - c) Re-install the Electrical Meters, Battery and Galley PWR Module. This is the task: Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801.
 - d) Do the Repair Confirmation at the end of this task.
- 2) If you do not find a problem in the wiring, then replace the Electrical Meters, Battery and Galley PWR Module. These are the tasks:
 - Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801
 - Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801
 - a) Re-install the ISFD Dedicated Battery System. This is the task: ISFD Dedicated Battery Charger Installation, AMM TASK 34-24-03-400-801.
 - b) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	8	C01551	ISFD

- (2) Make sure that this circuit breaker is closed:
 - Front of the Dedicated Battery System, M2100, E4-1: DBC Output Breaker
- (3) If the FAULT Light on the ISFD Dedicated Battery System Front Panel is not ON, then you corrected the problem.
- (4) If the FAULT light on the ISFD Dedicated Battery System Front Panel is ON, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

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801. ILS or Multi-Mode Receiver BITE Procedure

A. General

- (1) You do the Multimode Receiver (MMR) BITE Test at the front panel of the MMR.
- (2) This test uses GPS Data. The airplane must be in a position that the GPS Antenna is able to receive the Global Positioning System (GPS) Signal from the Satellite.
- (3) There are two MMR:
 - (a) MMR-1 is on the E1-2 Shelf of the Electronic Equipment Compartment.
 - (b) MMR-2 is on the E1-4 Shelf Electronic Equipment Compartment.
- (4) The MMR BITE Test does a self check for existing internal and external faults.
 - (a) Results of the BITE Test are shown on the front panel of the MMR.
- (5) The MMR Receivers have three Indicating Lights on the front panel.

NOTE: The ANTENNA FAIL light will come on when you do the BITE test, but stays OFF at all other times. The ANTENNA FAIL light is enabled for the GNSS antenna. On airplanes with Collins SB GLU-920-34-15, the ANTENNA FAIL light will come ON. This does not show that there is a fault.

NOTE: On airplanes with GLS capabilities, the ANTENNA FAIL Light on the Collins MMR may indicate a GPS Antenna/Connection failure.

B. BITE Procedure

- (1) Make sure that the airplane is in a location where it can receive GPS Signals.
- (2) Do the MMR BITE Procedure.
- (3) Push and release the TEST Switch on the front panel of the MMR Receiver to start the BITE Test.

NOTE: If power is recently applied to the MMR, then you must wait a minimum of 10 seconds before you start the BITE Test.

- (a) Make sure that these indications occur:
 - 1) All the Red Lights come ON.
 - 2) The LRU STATUS Light changes to Green after 2 seconds.
 - 3) All the lights go OFF after 2 seconds.
 - 4) The Green LRU STATUS Light comes ON and stays ON for about 30 seconds.
- (b) Refer to the table at the end of this task to find the applicable Fault Isolation Manual (FIM) Tasks for the maintenance messages that show.

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
MMR	CONTROL FAIL	34-31 TASK 813
MMR	LRU STATUS	34-31 TASK 812

————— **END OF TASK** —————

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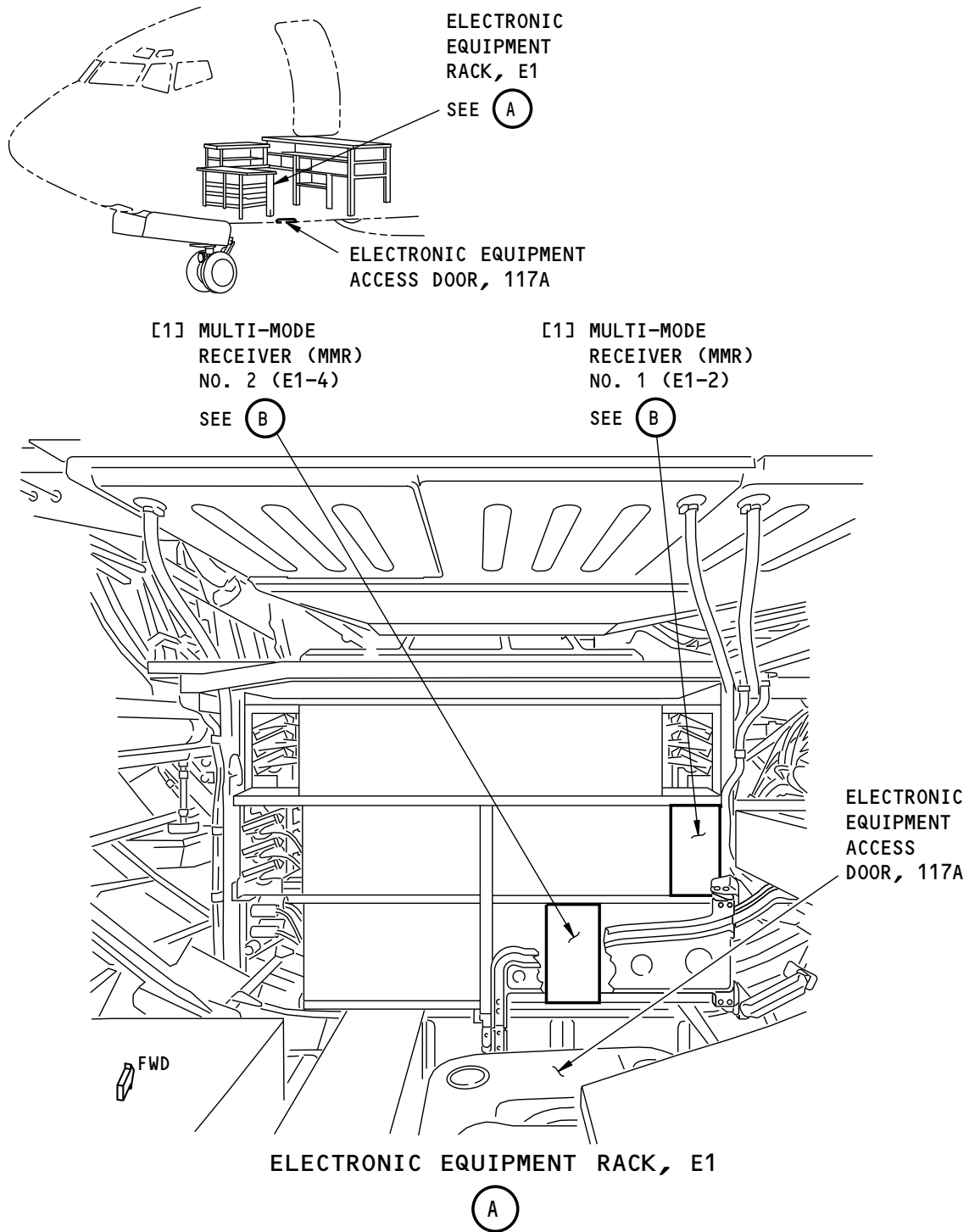
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H16034 S0006744068_V1

ILS Receiver
Figure 201/34-31-00-990-802 (Sheet 1 of 2)

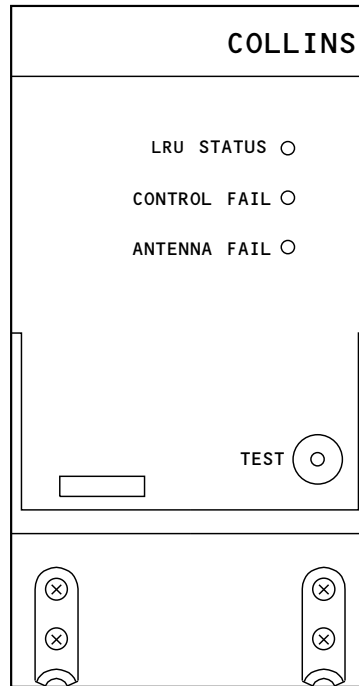
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MULTI-MODE RECEIVER (MMR)

(B)

H15869 S0006744073_V1

ILS Receiver
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806. LOC And G/S Flags Show On The Captain Display - Fault Isolation

A. Description

- (1) The Localizer (LOC) and Glideslope (G/S) receiver functions have a failure.

B. Possible Causes

- (1) Multi-Mode Receiver (MMR)-1, M2104
- (2) VHF NAV Switch S2, P5-28
- (3) Wiring
- (4) Display Electronic Unit (DEU), M1808

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1
B	3	C00190	RADIO NAVIGATION DME 1

D. Related Data

- (1) SSM 34-31-11
- (2) SSM 34-51-41
- (3) WDM 34-31-11
- (4) WDM 34-51-41

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - (a) If the flags do not show on the Captain Display, then there was an intermittent fault.
 - (b) If the flags show on the Captain Display, then do the Fault Isolation below.

F. Fault Isolation Procedure

- (1) Do this task: Instrument Landing System - Operational Test, AMM TASK 34-31-00-710-801.
 - (a) If the flags show on the Captain and First Officer (F/O) Displays while the VHF NAV Switch is in the BOTH ON 1 position, then do these steps:
 - 1) Replace the MMR-1, M2104. These are the tasks:
 - ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801
 - ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801
 - 2) If the flags do not show on the Captain and F/O Displays, then you corrected the problem.
 - (b) If the flags show on just the Captain or F/O Displays, then do these steps:
 - 1) Replace the VHF NAV Switch S2, P5-28.
 - 2) If the flags does not show on the Captain and F/O Displays, then you corrected the problem.
 - 3) If the flags show on the Captain and F/O Displays, then continue.
 - (c) If the flags only show on the Captain Display while the VHF NAV Switch is in the BOTH ON 1 position, then continue.

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- (2) Do this check of the wiring between the VHF NAV Switch and the DEU, M1808 (WDM 34-51-41):
- (a) Set the VHF NAV Switch to the BOTH ON 1 position.
 - (b) Remove the DEU, M1808. This is the task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a continuity check between pin G10 of the connector D3973E and Structure Ground.
 - 1) If there is not continuity between pin G10 and Structure Ground, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the DEU, M1808. This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - c) Do the Repair Confirmation at the end of this task.
 - 2) If there is continuity between pin G10 and Structure Ground, then continue.

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- (3) Do this check of the wiring between the DEU and the MMR (WDM 34-31-11):
- (a) Remove the DEU, M1808. This is the task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (b) Remove the MMR-1, M2104. This is the task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.
 - (c) Do a check for an open circuit between the pins specified for the applicable fault flag:

	DEU CONNECTOR	MMR CONNECTOR
LOC FLAG	D3973A	D10719B
	pin C15	pin G1
	pin D15	pin H1
G/S FLAG	D3973E	D10719B
	pin G3	pin G1
	pin H3	pin H1

- 1) If there is an open circuit, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the MMR-1, M2104. This is the task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
 - c) Re-install the DEU, M1808. This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - d) Do the Repair Confirmation at the end of this task.
- 2) If there is continuity between the pins, then do these steps and continue:
 - a) Re-install the MMR-1, M2104. This is the task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
 - b) Re-install the DEU, M1808. This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

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- (4) Do a check of the DEU. This is the task: DEU Self-Test Procedure, 31-62 TASK 802.
 - (a) If the DEU shows FAILED, then replace the DEU, M1808. These are the tasks:
 - Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
 - Display Electronic Unit Installation, AMM TASK 31-62-21-400-801
 - 1) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) If the flags do not show on the Captain Display, then you corrected the problem.
- (2) If the flags show on the Captain Display, then continue the Fault Isolation Procedure at the subsequent step.

— END OF TASK —

807. LOC And G/S Flags Show On The F/O Display - Fault Isolation

A. Description

- (1) The localizer (LOC) and glideslope (G/S) receiver functions have a failure.

B. Possible Causes

- (1) MMR-2, M2105.
- (2) VHF NAV switch S2, P5-28.
- (3) Wiring problem.
- (4) Display electronic unit (DEU), M1809.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) SSM 34-31-21
- (2) WDM 34-31-21

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - (a) If the flags show on the F/O display, then do the Fault Isolation below.
 - (b) If the flags do not show on the F/O display, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: Instrument Landing System - Operational Test, AMM TASK 34-31-00-710-801.
 - (a) If the flags show on the captain and F/O displays while the VHF NAV switch is in the BOTH ON 2 position, then do these steps:
 - 1) Replace the MMR-2, M2105, do these tasks:
 - ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801
 - ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801
 - 2) If the flags do not show on the captain and F/O displays, then you corrected the fault.

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- (b) If the flags show just on the captain or F/O displays, then do these steps:
 - 1) Replace the VHF NAV switch S2, P5-28.
 - 2) If the flags do not show on the captain and F/O displays, then you corrected the fault.
 - 3) If the flags show on the captain or F/O displays, then continue.
- (c) If the flags only show on the F/O display while the VHF NAV switch is in the BOTH ON 2 position, then continue.
- (2) Do this check of the wiring between the VHF NAV switch and the DEU, M1809:
 - (a) Set the VHF NAV switch to the BOTH ON 2 position.
 - (b) Remove the DEU, M1809. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a continuity check between pin G10 of the connector D3975B and structure ground.
 - (d) If there is not continuity between pin G10 and structure ground, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the DEU, M1809. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 3) If the flags do not show on the F/O display, then you corrected the fault.
 - (e) If there is continuity between pin G10 and structure ground, then continue.

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- (3) Do this check of the wiring between the DEU and the MMR:
 - (a) Remove the DEU, M1809. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (b) Remove the MMR-2, M2105. To remove it, do this task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.
 - (c) Do a check for an open circuit between the pins specified for the applicable fault flag:

	DEU CONNECTOR	MMR CONNECTOR
LOC FLAG	D3975D	D10721B
	pin C15	pin G1
	pin D15	pin H1
G/S FLAG	D3975B	D10721B
	pin G3	pin G1
	pin H3	pin H1

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install MMR-2, M2105. To install it, do this task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
 - 3) Re-install the DEU, M1809. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) If the flags do not show on the F/O display, then you corrected the fault.
- (e) If there is continuity between the pins, then continue.

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- 1) Re-install the MMR-2, M2105. To install it, do this task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
- 2) Re-install the DEU, M1809. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

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- (4) Do this check of the display electronic unit (DEU):
 - (a) Do this task: DEU Self-Test Procedure, 31-62 TASK 802.
 - (b) If the DEU shows FAILED, then do these steps:
 - 1) Replace the DEU, M1809.

These are the tasks:
Display Electronic Unit Removal, AMM TASK 31-62-21-000-801,
Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

———— **END OF TASK** ————

808. Navigation Control Panel Problem - Fault Isolation

A. Description

- (1) The Navigation Control Panel shows a failure.

B. Possible Causes

- (1) Navigation control panel, P8-25 (Captain) or P8-26 (F/O).

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) (WDM 34-51-41)
- (2) (SSM 34-51-41)

E. Initial Evaluation

- (1) Do this check of the NAV control panel:
 - (a) If the NAV control panel does display FAIL on the ACTIVE or STANDBY frequency indicators, then do the Fault Isolation Procedure below.
 - (b) If the NAV control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators, then it was an intermittent fault.

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F. Fault Isolation Procedure

- (1) Do check of the wiring of the INSTR SWITCHING module:
 - (a) Remove the P5 panel.
 - (b) Do a check of the grounding block for 0 volt (GND).
 - (c) For the captain's NAV control panel, P8-25, do the check of connector D553 at pin 28 and pin 29.
 - (d) For the first officer's NAV control panel, P8-26, do the check of connector D1817 at pin 14 and pin 15.
 - (e) Inspect the grounding jumpers for the P-5 panel to check for connection and proper resistance levels. The bonding is accomplished via two jumpers (IPC 25-11-21-10, item 245 or 25-11-21-10A, item 290, and IPC 31-11-94-02, item 18, typical). To check the attachment of the jumper shown at IPC 25-11-21-10, item 245/25-11-21-10A, item 290 to the airplane structure will require removal of the captain's forward ceiling panel (AMM AMM PAGEBLOCK 25-11-21/201)
 - (f) To check the resistance level, using a bonding meter, verify that the resistance of a path from bonding strap's attach point (ground lug) at the aft left outboard side of the P5 panel, to a seat rail, is less than 10 milliohms.
 - (g) If the resistance is found to be greater than the 10 milliohms limit, verify the resistance from P5 panel to the bracket, and from the bracket to the airplane structure, to determine the source of the discrepancy.
 - (h) Rework the discrepant bond per D6-54446 (SWPM 20-20-00) to meet less than 0.5 milliohm.
 - (i) If the NAV control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators, then you corrected the fault.
 - (j) Re-install the P5 panel.
- (2) If the NAV control panel displays FAIL on the ACTIVE or STANDBY frequency indicators, then continue.
- (3) Replace the NAV control panel, P8-25 (Captain) or P8-26 (F/O) as applicable.

These are the tasks:

Navigation Control Panel Removal, AMM TASK 34-31-52-000-801,
Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.

 - (a) If the NAV control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators, then you corrected the fault.

————— **END OF TASK** —————

809. No Pointers and No Flags - Fault Isolation

A. Description

- (1) The Instrument Landing System (ILS) data goes to a No Computed Data (NCD) condition.

B. Possible Causes

- (1) MMR-1, M2104 or MMR-2, M2105
- (2) Navigation control panel, P8-25 (Captain) or P8-26 (F/O)
- (3) G/S antenna, M40
- (4) LOC antenna, M1102

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(5) Wiring

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) SSM 31-62-15
- (2) SSM 34-31-11
- (3) WDM 31-62-15
- (4) WDM 34-31-11

E. Initial Evaluation

- (1) Do the ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - (a) If the localizer and glideslope pointers do not show on the captain or F/O displays, then do the Fault Isolation Procedure below.
 - (b) If the localizer and glideslope pointers show on the captain or F/O displays, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this check of the navigation control panel:
 - (a) Make sure that the navigation control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators.
 - (b) If the navigation control panel display FAIL on the ACTIVE or STANDBY frequency indicators, then do these steps:
 - 1) Replace the navigation control panel, P8-25 (Captain) or P8-26 (F/O), do these tasks:
 - Navigation Control Panel Removal, AMM TASK 34-31-52-000-801
 - Navigation Control Panel Installation, AMM TASK 34-31-52-400-801
 - (c) If the navigation control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators, then continue.
- (2) Do this check of the wiring:
 - (a) Remove the navigation control panel. This is the task: Navigation Control Panel Removal, AMM TASK 34-31-52-000-801.
 - (b) Remove the MMR. This is the task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.
 - (c) Do a continuity check between the MMR and the applicable navigation control panel:

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	NAV CONNECTOR	MMR CONNECTOR
CAPTAIN (P8-25)	D303 pin 28 pin 29	D10719B pin J1 pin K1
FIRST OFFICER (P8-26)	D305 pin 28 pin 29	D10721B pin J1 pin K1

- (d) If there is not continuity, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the navigation control panel. This is the task: Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
 - 3) Re-install the MMR. This is the task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
 - 4) Do the ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - 5) If the localizer and glideslope pointers show on the captain or F/O displays, then you corrected the fault.
- (e) If there is continuity, then continue.
- 1) Re-install the navigation control panel. This is the task: Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.

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- (3) Use a time domain reflectometer (TDR) test set time domain reflectometer, COM-5187 to do an electrical check of the coaxial cable and antenna:



CAUTION

YOU MUST PUT RF ABSORBENT MATERIAL ON THE ANTENNA BEFORE YOU USE THE TDR TEST SET. YOU CAN DAMAGE THE TEST SET IF A HIGH POWER TRANSMITTER OPERATES WITHIN 500 FEET OF THE ANTENNA.

- (a) Cover the applicable ILS antenna with RF absorbent material.
- (b) Connect the TDR test set to the applicable MMR (WDM 34-31-11):

	TDR TEST SET	MMR CONNECTOR
GLIDE/SLOPE	D10719C TDR pin 13 TDR pin C13	
LOCALIZER	D10719C TDR pin 12 TDR pin C12	

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- (c) Do an electrical check of the coaxial cable and the antenna.
NOTE: The TDR test set has instructions which tell how to do the check of the cable and antenna.
- (d) Disconnect the TDR test set.
- (e) Re-install the MMR. This is the task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
- (f) If you find a problem with the coaxial cable, then do these steps:
 - 1) Replace the coaxial cable (WDM 34-31-11).
 - 2) Do the ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - 3) If the localizer and glideslope pointers show on the captain or F/O displays, then you corrected the fault.
- (g) If you find a problem with the antenna, do these steps:
 - 1) Replace the G/S antenna, M40, or LOC antenna, M1102.
 - ILS Glide Slope Antenna - Removal, AMM TASK 34-31-21-000-801
 - ILS Glide Slope Antenna - Installation, AMM TASK 34-31-21-400-801
 - 2) Do the ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - 3) If the localizer and glideslope pointers show on the captain or F/O displays, then you corrected the fault.

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————— END OF TASK —————

810. ILS Frequency Shows Dashes - Fault Isolation

A. Description

- (1) There is NCD for the ILS Frequency.

B. Possible Causes

- (1) MMR-1, M2104 or MMR-2, M2105.
- (2) CAPT (F/O) Navigation (NAV) Control Panel, P8-25 (P8-26)
- (3) DEU 1 (2), M1808 (M1809)
- (4) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

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D. Related Data

- (1) WDM 34-31-11
- (2) WDM 34-31-21
- (3) SSM 34-31-11
- (4) SSM 34-31-21

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - (a) If the frequency does not show dashes on the Captain or F/O Displays, then there was an intermittent fault.
 - (b) If the frequency shows dashes on the Captain or F/O Displays, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

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- (1) Do this check of the NAV Control Panel:
 - (a) Make sure that the NAV Control Panel does not show FAIL on the ACTIVE or STANDBY Frequency Indicators.
 - 1) If the NAV Control Panel shows FAIL on the ACTIVE or STANDBY Frequency Indicators, then do these steps:
 - a) Replace the applicable CAPT (F/O) NAV Control Panel, P8-25 (P8-26). These are the tasks:
 - Navigation Control Panel Removal, AMM TASK 34-31-52-000-801
 - Navigation Control Panel Installation, AMM TASK 34-31-52-400-801
 - <1> Do the Repair Confirmation at the end of this task.
 - 2) If the NAV Control Panel does not show FAIL on the ACTIVE or STANDBY Frequency Indicators, then continue.
- (2) Do this check of the DEU Self-Test Procedure, 31-62 TASK 802.
 - (a) If the DEU shows FAILED, then do these steps:
 - 1) Replace the DEU 1 (2), M1808 (M1809). These are the tasks:
 - Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
 - Display Electronic Unit Installation, AMM TASK 31-62-21-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - (b) If the DEU shows PASSED, then continue.
- (3) Do this check of the wiring between the MMR and the NAV Control Panel:
 - (a) Remove the applicable Navigation Control Panel. This is the task: Navigation Control Panel Removal, AMM TASK 34-31-52-000-801.
 - (b) Remove the applicable MMR. This is the task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.
 - (c) Examine the wiring between the NAV Control Panel and the MMR for the applicable MMR FAULT as follows (WDM 34-31-11, WDM 34-31-21):

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MMR 1 FAULT

NAV CTRL PNL	MMR
D303	D10719B
pin 28	pin J1
pin 29	pin K1

MMR 2 FAULT

NAV CTRL PNL	MMR
D305	D10721B
pin 28	pin J1
pin 29	pin K1

- 1) If you find a problem in the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the Navigation Control Panel. This is the task: Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
 - c) Re-install the MMR. This is the task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
 - d) Do the Repair Confirmation at the end of this task.
- 2) If you do not find a problem in the wiring, do this step and then continue:
 - a) Re-install the Navigation Control Panel. This is the task: Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
- (4) Do this check of the wiring.
 - (a) Remove the applicable DEU, M1808 (M1809). This is the task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (b) Examine the wiring between the DEU and the MMR for the applicable MMR FAULT (WDM 34-31-11, WDM 34-31-21):

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MMR 1 FAULT

DEU CONNECTOR	MMR CONNECTOR
D3973A	D10719B
pin C15	pin G1
pin D15	pin H1
D3973E	D10719B
pin G3	pin G1
pin H3	pin H1
D3975A	D10719B
pin C15	pin G1
pin D15	pin H1
D3975E	D10719B
pin G3	pin G1
pin H3	pin H1

MMR 2 FAULT

DEU CONNECTOR	MMR CONNECTOR
D3973D	D10721B
pin C15	pin G1
pin D15	pin H1
D3973B	D10721B
pin G3	pin G1
pin H3	pin H1
D3975D	D10721B
pin C15	pin G1
pin D15	pin H1
D3975B	D10721B
pin G3	pin G1
pin H3	pin H1

- 1) If you find a problem in the wiring, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the MMR. This is the task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
 - c) Re-install the applicable DEU 1 (2), M1808 (M1809). This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

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- d) Do the Repair Confirmation at the end of this task.

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G. Repair Confirmation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
- (a) If the frequency does not show dashes on the Captain or F/O Displays, then you corrected the problem.
- (b) If the frequency still shows dashes on the Captain or F/O Displays, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

811. Audio Tone Problem - Fault Isolation

A. Description

- (1) Audio tone does not occur or is weak.

B. Possible Causes

- (1) MMR-1, M2104 or MMR-2, M2105
- (2) Remote Electronics Unit (REU), M1353
- (3) Wiring
- (4) Nose Radome moisture

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) SSM 34-31-11
- (2) SSM 34-31-21
- (3) WDM 34-31-11
- (4) WDM 34-31-21

E. Initial Evaluation

- (1) Do the Instrument Landing System - System Test, AMM TASK 34-31-00-730-801.
- (a) If there is no audio tone or the audio tone is weak, then do the Fault Isolation Procedure below.
- (b) If the audio tone is normal, then there was an intermittent fault.

F. Fault Isolation Procedure

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- (1) Do this check of the MMR:
 - (a) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - (b) If the red LRU STATUS light comes on after approximately 15 seconds, then follow the BITE procedure and go to the task for the applicable maintenance message.
 - (c) If the green LRU STATUS light comes on after approximately 15 seconds, then continue.

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- (2) Replace the REU, M1353, do these tasks:
 - Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801
 - Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802
 - (a) Do this task: Instrument Landing System - System Test, AMM TASK 34-31-00-730-801.
 - (b) If the audio tone is normal, then you corrected the fault.
 - (c) If there is no audio tone or the audio tone is weak, then continue.
- (3) Do this check of the wiring (WDM 34-31-11, WDM 34-31-21):
 - (a) Remove the remote electronics unit. To remove it, do this task: Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
 - (b) Remove the MMR. To remove it, do this task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.
 - (c) Do a continuity check between these pins of connector D10719B for the MMR and connector D2501A for the remote electronics unit:

**MMR
CONNECTOR
D10719B**

pin J10
pin K10

**REU
CONNECTOR
D2501A**

pin E12
pin E11

**MMR
CONNECTOR
D10721B**

pin J10
pin K10

**REU
CONNECTOR
D2501A**

pin H9
pin G9

- (d) If there is not continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the remote electronics unit. To install it, do this task: Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
 - 3) Re-install the MMR. To install it, do this task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
 - 4) Do this task: Instrument Landing System - System Test, AMM TASK 34-31-00-730-801.
 - 5) If the audio tone is normal, then you corrected the fault.
- (e) If there is continuity, then continue.

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- 1) Re-install the remote electronics unit. To install it, do this task: Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
 - 2) Re-install the MMR. To install it, do this task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
- (f) Do a Nose Radome Inspection AMM TASK 53-52-00-200-801.

————— **END OF TASK** —————

812. ILS or Multi-Mode Receiver Failed - Fault Isolation

A. Description

- (1) The task is for this maintenance message:
 - (a) LRU STATUS
- (2) The MMR has an internal failure.

B. Possible Causes

- (1) Multi-Mode Receiver, M2104 (No. 1) or M2105 (No. 2).

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

D. Related Data

- (1) (SSM 34-31-11).
- (2) (SSM 34-31-21).
- (3) (WDM 34-31-11).
- (4) (WDM 34-31-21).

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - (a) If the red LRU STATUS light comes on after approximately 15 seconds, then do the Fault Isolation Procedure below.
 - (b) If the green LRU STATUS light comes on after approximately 15 seconds, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Replace the MMR, M2104 (No. 1) or M2105 (No. 2).

These are the tasks:

ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801,

ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.

 - (a) If the green LRU STATUS light comes on after approximately 15 seconds, then you corrected the fault.

————— **END OF TASK** —————

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813. ILS Tuning Port-B Missing Input - Fault Isolation

A. Description

- (1) The task is for this maintenance message:
 - (a) CONTROL FAIL
- (2) MMR receives no input data from the navigation control panel.

B. Possible Causes

- (1) Wiring problem.
- (2) Navigation control panel, P8-25 (captain's) or P8-26 (first officer's).

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

D. Related Data

- (1) (SSM 34-31-11).
- (2) (SSM 34-31-21).
- (3) (WDM 34-31-11).
- (4) (WDM 34-31-21).

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - (a) If the red CONTROL FAIL light comes on after approximately 15 seconds, then do the Fault Isolation Procedure below.
 - (b) If the green LRU STATUS light comes on after approximately 15 seconds, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this check of the navigation control panel:
 - (a) Make sure that the navigation control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators.
 - (b) If the navigation control panel display FAIL on the ACTIVE or STANDBY frequency indicators, then do these steps:
 - 1) Replace the navigation control panel, P8-25 (captain's) or P8-26 (first officer's).
These are the tasks:
Navigation Control Panel Removal, AMM TASK 34-31-52-000-801,
Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
 - 2) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - 3) If the green LRU STATUS light comes on after approximately 15 seconds, then you corrected the fault.
 - (c) If the navigation control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators, then continue.
- (2) Do this check of the wiring:

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- (a) Remove the navigation control panel. To remove it, do this task: Navigation Control Panel Removal, AMM TASK 34-31-52-000-801.
- (b) Remove the MMR. To remove it, do this task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.
- (c) Do a continuity check between the MMR and the applicable navigation control panel:

	NAV CONNECTOR	MMR CONNECTOR
CAPTAIN (P8-25)	D303	D10719B
	pin 28	pin J1
	pin 29	pin K1
FIRST OFFICER (P8-26)	D305	D10721B
	pin 28	pin J1
	pin 29	pin K1

- (d) If there is not continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the navigation control panel. To install it, do this task: Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
 - 3) Re-install the MMR. To install it, do this task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
 - 4) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - 5) If the green LRU STATUS light comes on after approximately 15 seconds, then you corrected the fault.

————— **END OF TASK** —————

818. MMR No Response to TEST Switch - Fault Isolation

A. Description

- (1) The MMR does nothing when you push the TEST switch.

B. Possible Causes

- (1) MMR-1 (2), M2104 (M2105)
- (2) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

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D. Related Data

- (1) SSM 34-31-11
- (2) SSM 34-31-21
- (3) WDM 34-31-11
- (4) WDM 34-31-21

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - (a) If the MMR does nothing, then do the Fault Isolation Procedure below.
 - (b) If the MMR indicates that there are no fault, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Replace the MMR-1, M2104 or MMR-2, M2105.
 - ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801
 - ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801
- (a) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
- (b) If the MMR indicates that there are no fault, then you corrected the fault.
- (c) If the MMR does nothing, then continue.
- (2) Do this check of the wiring between the MMR and the MMR circuit breaker:
 - (a) Remove the applicable MMR. To remove it, do this task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.
 - (b) Do a continuity check between the specified pins for the applicable MMR FAULT:

	MMR CIRCUIT BREAKER	MMR CONNECTOR
MMR 1	C1479 pin =L	D10719C pin 9
MMR 2	C1480 pin =L	D10721C pin 9

- (c) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the MMR. To install it, do this task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
 - 3) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - 4) If the MMR indicates that there are no fault, then you corrected the fault.

————— **END OF TASK** —————

819. ILS Light Stays On Continuously - Fault Isolation

A. Description

- (1) The ILS light shows on the IRS Mode Select Unit.

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B. Possible Causes

- (1) Multi-Mode Receiver (MMR-1), M2104 or (MMR-2), M2105.
- (2) IRS Mode Select Unit, P5-69.
- (3) IRS Master Caution Unit, M1206.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) (SSM 34-58-11).
- (2) (SSM 34-58-21).
- (3) (WDM 34-31-11).
- (4) (WDM 34-31-21).
- (5) (WDM 34-58-11).
- (6) (WDM 34-58-21).

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801
 - (a) If the ILS light shows on the IRS Mode Select Unit, then do the Fault Isolation Procedure below.
 - (b) If the ILS light does not show on the IRS Mode Select Unit, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) If LOC and G/S Flags are shown on both the Captain's and F/O's Displays, then do these tasks:

LOC And G/S Flags Show On The Captain Display - Fault Isolation, 34-31 TASK 806
and LOC And G/S Flags Show On The F/O Display - Fault Isolation, 34-31 TASK 807.

 - (a) If the ILS light does not show on the IRS Mode Select Unit and both LOC and G/S Flags does not shown on the Captain's and F/O's Displays, then your corrected the fault.
 - (b) If the ILS light shows on the IRS Mode Select Unit, then continue.
- (2) Replace the IRS Mode Select Unit, P5-69

These are the tasks:
AMM TASK 34-21-03-000-801,
AMM TASK 34-21-03-400-801.

 - (a) If the ILS light does not show on the IRS Mode Select Unit, then you corrected the fault.
 - (b) If the ILS light shows on the IRS Mode Select Unit, then continue.

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- (3) Replace the IRS Master Caution Unit, M1206, on the P61 sidewall panel.

These are the tasks:

AMM TASK 34-21-07-000-801,

AMM TASK 34-21-07-400-801.

- (a) If the ILS light does not show on the IRS Mode Select Unit, then you corrected the fault.
- (b) If the ILS light shows on the IRS Mode Select Unit, then continue.
- (4) Do this check of the wiring:
- (a) Remove the IRS Mode Select Unit. To remove it, do this task: AMM TASK 34-21-03-000-801.
- (b) Remove the MMR. To remove it, do this task: AMM TASK 34-31-42-000-801.
- (c) Remove the IRS MCU. To remove it, do this task: AMM TASK 34-21-07-000-801.
- (d) Do a continuity check between the MMR and the IRS MCU:

**IRS MCU
CONNECTOR
D2269**

pin 7 pin G1
pin 10 pin H1

**MMR
CONNECTOR
D10719B**

D2271
pin 7 pin G1
pin 10 pin H1

D10721B

- (e) Do a continuity check between the IRS Mode Select Unit and IRS MCU:

**IRS MSU
CONNECTOR
D2171**

pin 19 pin 12

**IRS MCU
CONNECTOR
D2269**

- (f) If there is not continuity, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the IRS Mode Select Unit. To install it, do this task: AMM TASK 34-21-03-400-801.
 - 3) Re-install the MMR. To install it, do this task: AMM TASK 34-31-42-400-801.
 - 4) Re-install the IRS MCU. To install it, do this task: AMM TASK 34-21-07-400-801.
 - 5) If the ILS light does not show on the IRS Mode Select Unit, then you corrected the fault.

————— **END OF TASK** —————

820. ILS Light On When Master Caution Pushed - Fault Isolation

A. Description

- (1) The ILS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed.

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B. Possible Causes

- (1) Multi-Mode Receiver (MMR-1), M2104 or (MMR-2), M2105.
- (2) IRS Mode Select Unit, P5-69.
- (3) IRS Master Caution Unit, M1206.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) (SSM 34-58-11).
- (2) (SSM 34-58-21).
- (3) (WDM 34-31-11).
- (4) (WDM 34-31-21).
- (5) (WDM 34-58-11).
- (6) (WDM 34-58-21).

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801
 - (a) If the ILS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then do the Fault Isolation Procedure below.
 - (b) If the ILS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) If LOC and G/S Flags are shown on either the Captain's and F/O's Displays, then do the appropriate task:
either LOC And G/S Flags Show On The Captain Display - Fault Isolation, 34-31 TASK 806,
or LOC And G/S Flags Show On The F/O Display - Fault Isolation, 34-31 TASK 807.
 - (a) If the ILS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed and LOC and G/S Flags does not shown on either the Captain's and F/O's Displays, then your corrected the fault.
 - (b) If the ILS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
- (2) Replace the IRS Mode Select Unit, P5-69
These are the tasks:
AMM TASK 34-21-03-000-801,
AMM TASK 34-21-03-400-801.

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- (a) If the ILS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.
- (b) If the ILS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
- (3) Replace the IRS Master Caution Unit, M1206, on the P61 sidewall panel.

These are the tasks:

AMM TASK 34-21-07-000-801,

AMM TASK 34-21-07-400-801.

- (a) If the ILS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.
- (b) If the ILS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
- (4) Do this check of the wiring:
 - (a) Remove the IRS Mode Select Unit. To remove it, do this task: AMM TASK 34-21-03-000-801.
 - (b) Remove the MMR. To remove it, do this task: AMM TASK 34-31-42-000-801.
 - (c) Remove the IRS MCU. To remove it, do this task: AMM TASK 34-21-07-000-801.
 - (d) Do a continuity check between the MMR and the IRS MCU:

**IRS MCU
CONNECTOR**

D2269

pin 7 pin G1
pin 10 pin H1

MMR

CONNECTOR

D10719B

pin G1
pin H1

D2271

pin 7 pin G1
pin 10 pin H1

D10721B

pin G1
pin H1

- (e) Do a continuity check between the IRS Mode Select Unit and IRS MCU:

**IRS MSU
CONNECTOR**

D2171

pin 19 pin 12

IRS MCU

CONNECTOR

D2269

pin 12

- (f) If there is not continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IRS Mode Select Unit. To install it, do this task: AMM TASK 34-21-03-400-801.
 - 3) Re-install the MMR. To install it, do this task: AMM TASK 34-31-42-400-801.
 - 4) Re-install the IRS MCU. To install it, do this task: AMM TASK 34-21-07-400-801.
 - 5) If the ILS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.

————— **END OF TASK** —————

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821. GLS Light Stays On Continuously - Fault Isolation

A. Description

- (1) The GLS light shows on the IRS Mode Select Unit.

B. Possible Causes

- (1) GPS antenna connection (M2102), D2947 or (M2103), D2941.
- (2) Multi-Mode Receiver (MMR-1), M2104 or (MMR-2), M2105.
- (3) IRS Mode Select Unit, P5-69.
- (4) IRS Master Caution Unit, M1206.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) (SSM 34-58-11).
- (2) (SSM 34-58-21).
- (3) (WDM 34-31-11).
- (4) (WDM 34-31-21).
- (5) (WDM 34-58-11).
- (6) (WDM 34-58-21).

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801
 - (a) If the GLS light shows on the IRS Mode Select Unit, then do the Fault Isolation Procedure below.
 - (b) the GLS light does not show on the IRS Mode Select Unit, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) If LOC and G/S Flags are shown on both or either the Captain's and F/O's Displays, then do these tasks:

LOC And G/S Flags Show On The Captain Display - Fault Isolation, 34-31 TASK 806
and/or LOC And G/S Flags Show On The F/O Display - Fault Isolation, 34-31 TASK 807.

 - (a) If the GLS light does not show on the IRS Mode Select Unit and LOC and G/S Flags does not shown on the Captain's and/or F/O's Displays, then you corrected the fault
 - (b) If the GLS light shows on the IRS Mode Select Unit and LOC and G/S Flags shown on the Captain's and/or F/O's Displays, then continue.
- (2) Do the inspection of the GPS antenna connection.

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- (a) Check for any loose GPS cable connections between the MMR and the GPS antenna:

**MMR
CONNECTOR
D10719A**
pin 2

**E1-2
CONNECTOR
D42941P**
pin A1

**E1-2
CONNECTOR
D42941J**
A1

**GPS ANTENNA
CONNECTOR
D2941**
A1

**MMR
CONNECTOR
D10721A**
pin 2

**E1-4
CONNECTOR
D42943P**
pin A1

**E1-4
CONNECTOR
D42943J**
A1

**GPS ANTENNA
CONNECTOR
D2947**
A1

- (b) If the cable connection is loose, repair the wiring.
- (c) If the flags do not show on the Captain's and/or F/O's Displays and GLS light does not show on the IRS Mode Select Unit, then you corrected the fault.
- (d) If the flags show on the Captain's and/or F/O's Displays and GLS light still shows on the IRS Mode Select Unit, then continue.
- (e) Do this task: AMM TASK 25-21-45-000-803-001.
- (f) Inspect the GPS antenna connector (M2102), D2947 or (M2103), D2941 for water contamination and repair if necessary.
- (g) Do this task: AMM TASK 25-21-45-400-803-001.
- (h) If the GLS light does not show on the IRS Mode Select Unit, then you corrected the fault.
- (i) If the GLS light shows on the IRS Mode Select Unit, then continue.
- (3) Replace the IRS Mode Select Unit, P5-69
These are the tasks:
AMM TASK 34-21-03-000-801,
AMM TASK 34-21-03-400-801.
- (a) If the GLS light does not show on the IRS Mode Select Unit, then you corrected the fault.
- (b) If the GLS light shows on the IRS Mode Select Unit, then continue.
- (4) Replace the IRS Master Caution Unit, M1206, on the P61 sidewall panel.
These are the tasks:
AMM TASK 34-21-07-000-801,
AMM TASK 34-21-07-400-801.
- (a) If the GLS light does not show on the IRS Mode Select Unit, then you corrected the fault.

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- (b) If the GLS light shows on the IRS Mode Select Unit, then continue.
- (5) Do this check of the wiring:
- (a) Remove the IRS Mode Select Unit. To remove it, do this task: AMM TASK 34-21-03-000-801.
- (b) Remove the MMR. To remove it, do this task: AMM TASK 34-31-42-000-801.
- (c) Remove the IRS MCU. To remove it, do this task: AMM TASK 34-21-07-000-801.
- (d) Do a continuity check between the MMR and the IRS MCU:

**IRS MCU
CONNECTOR
D2269**

pin 7 pin G1
pin 10 pin H1

**MMR
CONNECTOR
D10719B**

D2271

pin 7 pin G1
pin 10 pin H1

D10721B

- (e) Do a continuity check between the IRS Mode Select Unit and IRS MCU:

**IRS MSU
CONNECTOR
D2173**

pin 24 pin 8

**IRS MCU
CONNECTOR
D2271**

- (f) If there is not continuity, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the IRS Mode Select Unit. To install it, do this task: AMM TASK 34-21-03-400-801.
 - 3) Re-install the MMR. To install it, do this task: AMM TASK 34-31-42-400-801.
 - 4) Re-install the IRS MCU. To install it, do this task: AMM TASK 34-21-07-400-801.
 - 5) If the GLS light does not show on the IRS Mode Select Unit, then you corrected the fault.

————— **END OF TASK** —————

822. GLS Light On When Master Caution Pushed - Fault Isolation

A. Description

- (1) If the GLS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed.

B. Possible Causes

- (1) GPS antenna connection (M2102), D2947 or (M2103), D2941.
- (2) Multi-Mode Receiver (MMR-1), M2104 or (MMR-2), M2105.
- (3) IRS Mode Select Unit, P5-69.
- (4) IRS Master Caution Unit, M1206.

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) (SSM 34-58-11).
- (2) (SSM 34-58-21).
- (3) (WDM 34-31-11).
- (4) (WDM 34-31-21).
- (5) (WDM 34-58-11).
- (6) (WDM 34-58-21).

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801
 - (a) If the GLS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then do the Fault Isolation Procedure below.
 - (b) If the GLS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) If LOC and G/S Flags are shown on both or either the Captain's and F/O's Displays, then do these tasks:
LOC And G/S Flags Show On The Captain Display - Fault Isolation, 34-31 TASK 806
and/or LOC And G/S Flags Show On The F/O Display - Fault Isolation, 34-31 TASK 807.
 - (a) If the GLS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed and LOC and G/S Flags does not shown on the Captain's and/or F/O's Displays, then you corrected the fault
 - (b) If the GLS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed and LOC and G/S Flags shown on the Captain's and/or F/O's Displays, then continue.
- (2) Do the inspection of the GPS antenna connection.
 - (a) Check for any loose GPS cable connections between the MMR and the GPS antenna:

**MMR
CONNECTOR
D10719A**
pin 2

**E1-2
CONNECTOR
D42941P**
pin A1

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**E1-2
CONNECTOR
D42941J
A1**

**GPS ANTENNA
CONNECTOR
D2941
A1**

**MMR
CONNECTOR
D10721A
pin 2**

**E1-4
CONNECTOR
D42943P
pin A1**

**E1-4
CONNECTOR
D42943J
A1**

**GPS ANTENNA
CONNECTOR
D2947
A1**

- (b) If the cable connection is loose, repair the wiring.
 - (c) If the flags do not show on the Captain's and/or F/O's Displays and GLS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.
 - (d) If the flags show on the Captain's and/or F/O's Displays and GLS light still shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
 - (e) Do this task: AMM TASK 25-21-45-000-803-001.
 - (f) Inspect the GPS antenna connector (M2102), D2947 or (M2103), D2941 for water contamination and repair if necessary.
 - (g) Do this task: AMM TASK 25-21-45-400-803-001.
 - (h) If the GLS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then your corrected the fault.
 - (i) If the GLS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
- (3) Replace the IRS Mode Select Unit, P5-69
- These are the tasks:
- AMM TASK 34-21-03-000-801,
AMM TASK 34-21-03-400-801.
- (a) If the GLS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.
 - (b) If the GLS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
- (4) Replace the IRS Master Caution Unit, M1206, on the P61 sidewall panel.
- These are the tasks:
- AMM TASK 34-21-07-000-801,
AMM TASK 34-21-07-400-801.
- (a) If the GLS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.

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- (b) If the GLS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
- (5) Do this check of the wiring:
- (a) Remove the IRS Mode Select Unit. To remove it, do this task: AMM TASK 34-21-03-000-801.
- (b) Remove the MMR. To remove it, do this task: AMM TASK 34-31-42-000-801.
- (c) Remove the IRS MCU. To remove it, do this task: AMM TASK 34-21-07-000-801.
- (d) Do a continuity check between the MMR and the IRS MCU:

**IRS MCU
CONNECTOR
D2269**

pin 7 pin G1
pin 10 pin H1

**MMR
CONNECTOR
D10719B**

D2271

pin 7 pin G1
pin 10 pin H1

D10721B

- (e) Do a continuity check between the IRS Mode Select Unit and IRS MCU:

**IRS MSU
CONNECTOR
D2173**

pin 24 pin 8

**IRS MCU
CONNECTOR
D2271**

- (f) If there is not continuity, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the IRS Mode Select Unit. To install it, do this task: AMM TASK 34-21-03-400-801.
 - 3) Re-install the MMR. To install it, do this task: AMM TASK 34-31-42-400-801.
 - 4) Re-install the IRS MCU. To install it, do this task: AMM TASK 34-21-07-400-801.
 - 5) If the GLS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.

————— **END OF TASK** —————

823. ILS, GLS and GPS Lights All Stay On Continuously - Fault Isolation

A. Description

- (1) The ILS, GLS and GPS lights come ON, on the IRS Mode Select Unit.

B. Possible Causes

- (1) Multi-Mode Receiver (MMR-1), M2104 or (MMR-2), M2105.
- (2) IRS Mode Select Unit, P5-69.
- (3) IRS Master Caution Unit, M1206.
- (4) GPS antenna connection (M2102), D2947 or (M2103), D2941.

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) SSM 34-31-11
- (2) SSM 34-31-21
- (3) WDM 34-31-11
- (4) WDM 34-31-21

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801
 - (a) If the ILS, GLS and GPS lights come ON, on the IRS Mode Select Unit, then do the Fault Isolation Procedure below.
 - (b) If the ILS, GLS and GPS lights do not come ON, on the IRS Mode Select unit, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Replace the MMR, (M2104 or M2105), do these tasks:
 - ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801
 - ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801
- (a) If the ILS, GLS and GPS lights do not come ON, on the IRS Mode Select Unit, then you corrected the fault.
- (b) If the ILS, GLS and GPS lights come ON, on the IRS Mode Select Unit, then continue.
- (2) If MMR dip switches, M2109 and M2110 are installed:
 - (a) Make sure that the switches 1 through 12 on the MMR dip switch, M2109 and M2110, are set to the same positions as shown on WDM 34-31-11 and WDM 34-31-21.
 - 1) If the switches are not in the correct position, then do these steps:
 - a) Set the switches to the switch positions shown in the WDM 34-31-11 and WDM 34-31-21.
 - b) If the ILS, GLS and GPS lights do not come ON, on the IRS Mode Select Unit, then you corrected the fault.
 - c) If the ILS, GLS and GPS lights come ON, on the IRS Mode Select Unit, then continue.
 - 2) If the switches are in the correct position, then continue.
- (3) Do this check of the wiring (WDM 34-31-11 and WDM 34-31-21):
 - (a) Remove the MMR. To remove it, do this task: AMM TASK 34-31-42-000-801.

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- (b) If MMR dip switches are not installed, do this continuity check of the pins on MMR connectors D10719B and D10721B:

Pin D7	A/C TYPE BIT 3
Pin H5	A/C TYPE BIT 2
Pin J5	A/C TYPE BIT PARITY
Pin B5	OUT DATA NOT INTERRUPT
Pin D5	OUT DATA INTERRUPT

NOTE: Pins not shown on the WDM are not applicable to the configuration.

- 1) For pins connected to a terminal block, do a continuity check between the applicable pin and pin K4 (common).
 - a) Make sure that the resistance is less than 10 ohms.
 - 2) Do a continuity check between the applicable pin and aircraft DC ground.
 - a) For pins that are connected to ground, make sure that the resistance is less than 10 ohms.
 - b) For pins that are not connected, make sure that the resistance is greater than 100 kohms.
- (c) If MMR dip switches are installed:
- 1) On the MMR connectors D10719B and D10721B, do a continuity check between the applicable pin and pin K4 (common).

Pin D7	A/C TYPE BIT 3
Pin H5	A/C TYPE BIT 2
Pin J5	A/C TYPE BIT PARITY
Pin B5	OUT DATA NOT INTERRUPT
Pin D5	OUT DATA INTERRUPT

- a) For the dip switches set to one, make sure that the resistance is less than 10 ohms.
 - b) For the dip switches set to zero, make sure that the resistance is greater than 100 kohms.
- (d) If the result is not as expected, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the MMR. To install it, do this task: AMM TASK 34-31-42-400-801.
 - 3) If the ILS, GLS and GPS lights do not come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.
 - 4) If the ILS, GLS and GPS lights come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
- (e) If there is continuity, then continue.
- 1) Re-install the MMR. To install it, do this task: AMM TASK 34-31-42-400-801.
- (4) If the ILS, GLS and GPS lights come ON, on the IRS Model Select Unit, then do these tasks:
- ILS Light Stays On Continuously - Fault Isolation, 34-31 TASK 819

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- GLS Light Stays On Continuously - Fault Isolation, 34-31 TASK 821
- GPS Light Stays On Continuously - Fault Isolation, 34-58 TASK 801
- (a) If the ILS, GLS and GPS lights do not come ON, on the IRS Mode Select Unit, then you corrected the fault.

————— **END OF TASK** —————

824. ILS, GLS and GPS Lights All Come On When Master Caution Pushed - Fault Isolation

A. Description

- (1) The ILS, GLS and GPS lights come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed.

B. Possible Causes

- (1) Multi-Mode Receiver (MMR-1), M2104 or (MMR-2), M2105
- (2) IRS Mode Select Unit, P5-69
- (3) IRS Master Caution Unit, M1206
- (4) GPS antenna connection (M2102), D2947 or (M2103), D2941

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) SSM 34-31-11
- (2) SSM 34-31-21
- (3) WDM 34-31-11
- (4) WDM 34-31-21

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801
 - (a) If the ILS, GLS and GPS lights come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed, then do the Fault Isolation Procedure below.
 - (b) If the ILS, GLS and GPS lights do not come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Replace the MMR, (M2104 or M2105), do these tasks:
 - ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801
 - ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801

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- (a) If the ILS, GLS and GPS lights do not come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.
- (b) If the ILS, GLS and GPS lights come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
- (2) If MMR dip switches, M2109 and M2110 are installed:
 - (a) Make sure that the switches 1 through 12 on the MMR dip switch, M2109 and M2110, are set to the same positions as shown on WDM 34-31-11 and WDM 34-31-21.
 - 1) If the switches are not in the correct position, then do these steps:
 - a) Set the switches to the switch positions shown in the WDM 34-31-11 and WDM 34-31-21.
 - b) If the ILS, GLS and GPS lights do not come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.
 - c) If the ILS, GLS and GPS lights come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
 - 2) If the switches are in the correct position, then continue.
- (3) Do this check of the wiring (WDM 34-31-11 and WDM 34-31-21):
 - (a) Remove the MMR. To remove it, do this task: AMM TASK 34-31-42-000-801.
 - (b) If MMR dip switches are not installed, do this continuity check of the pins on the MMR connectors D10719B and D10721B:

Pin D7	A/C TYPE BIT 3
Pin H5	A/C TYPE BIT 2
Pin J5	A/C TYPE BIT PARITY
Pin B5	OUT DATA NOT INTERRUPT
Pin D5	OUT DATA INTERRUPT

NOTE: Pins not shown on the WDM are not applicable to the configuration.

- 1) For pins connected to a terminal block, do a continuity check between the applicable pin and pin K4 (common).
 - a) Make sure that the resistance is less than 10 ohms.
- 2) Do a continuity check between the applicable pin and aircraft DC ground.
 - a) For pins that are connected to ground, make sure that the resistance is less than 10 ohms.
 - b) For pins that are not connected, make sure that the resistance is greater than 100 kohms.
- (c) If MMR dip switches are installed:
 - 1) On the MMR connectors D10719B and D10721B, do a continuity check between the applicable pin and pin K4 (common).

Pin D7	A/C TYPE BIT 3
Pin H5	A/C TYPE BIT 2

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Pin J5	A/C TYPE BIT PARITY
Pin B5	OUT DATA NOT INTERRUPT
Pin D5	OUT DATA INTERRUPT

- a) For the dip switches set to one, make sure that the resistance is less than 10 ohms.
- b) For the dip switches set to zero, make sure that the resistance is greater than 100 kohms.
- (d) If the result is not as expected, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the MMR. To install it, do this task: AMM TASK 34-31-42-400-801.
 - 3) If the ILS, GLS and GPS lights do not come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.
 - 4) If the ILS, GLS and GPS lights come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
- (e) If there is continuity, then continue.
 - 1) Re-install the MMR. To install it, do this task: AMM TASK 34-31-42-400-801.
- (4) If the ILS, GLS and GPS lights come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed, then do these tasks:
 - ILS Light On When Master Caution Pushed - Fault Isolation, 34-31 TASK 820
 - GLS Light On When Master Caution Pushed - Fault Isolation, 34-31 TASK 822
 - GPS Light On When Master Caution Pushed - Fault Isolation, 34-58 TASK 802
- (a) If the ILS, GLS and GPS lights do not come ON, on the IRS Mode Select Unit, when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.

————— **END OF TASK** —————

828. Multi-Mode Receiver: inoperative or date and time are not correct - Fault Isolation

A. Description

- (1) This fault is for MMRs becoming inoperative or date and time are not correct due to GPS interferences from previous flight leg. This will restore the MMRs to be functional with proper time/date.

B. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

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C. Fault Isolation Procedure

(1) Do these steps if the incorrect date shows or if the GPS remains INOP:

(a) Open and close these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

(b) Do the Repair Confirmation at the end of this task.

D. Repair Confirmation

(1) Do the Global Positioning System Operational Test. This is the task: Global Positioning System - Operational Test, AMM TASK 34-58-00-710-802.

(a) If the observed fault symptom goes away, then you corrected the problem.

(b) If the observed fault symptom stays, then continue the Fault Isolation at the subsequent step.

———— **END OF TASK** ————

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801. Indications Normal, Audio Tone Problem - Fault Isolation

A. Description

- (1) The audio tone does not occur or is weak when passing a marker, however indications are normal.

B. Possible Causes

- (1) VOR/marker beacon receiver, M1724
(2) Remote Electronics Unit (REU), M1353
(3) Wiring

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

D. Related Data

- (1) SSM 34-32-11
(2) WDM 34-32-11

E. Initial Evaluation

- (1) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
(a) If the audio tone do not occur or is weak, then do the Fault Isolation Procedure below.
(b) If the audio tone is normal, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) For VOR/marker beacon receiver, M1724, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
(a) If the VOR/marker beacon BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
1) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
a) If the audio tone do not occur or is weak, then continue.
b) If the audio tone is normal, then you corrected the fault.
(b) If the VOR/marker beacon BITE test does not show a fault, then continue.
(2) Do this check of the wiring:
(a) Do the Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
(b) For the VOR/marker beacon receiver, M1724, do the VOR/MKR Receiver Removal, AMM TASK 34-51-01-000-801.
(c) Do a continuity check between the VOR/marker beacon receiver (VOR 1) and the REU:

VOR CONNECTOR	REU CONNECTOR
D3623B	D2501A
pin C4	pin A15
pin D4	pin A14

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- (d) If there is no continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) Do the Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
 - 3) For the VOR/marker beacon receiver, M1724, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 4) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
 - 5) If the audio tone is normal, then you corrected the fault.
- (e) If there is continuity, then do this step and continue:
 - 1) For the VOR/marker beacon receiver, M1724, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
- (3) Replace the REU, M1353, do these tasks:
 - Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801
 - Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802
- (a) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
- (b) If the audio tone is normal, then you corrected the fault.

———— **END OF TASK** ————

802. Indication And Audio Tone Problem - Fault Isolation

A. Description

- (1) Indication does not show on the display when passing a marker, audio tone does not occur or is weak.

B. Possible Causes

- (1) Marker beacon antenna and its coaxial cable
- (2) VOR/marker beacon receiver, M1724
- (3) Wiring
- (4) REU, M1353
- (5) Display Electronic Unit (DEU), M1808 (No. 1) or M1809 (No. 2)

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

D. Related Data

- (1) SSM 34-32-11
- (2) WDM 34-32-11
- (3) WDM 34-51-11

E. Initial Evaluation

- (1) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
 - (a) If the indications do not show on the display and the audio tone is weak, then do the Fault Isolation Procedure below.

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- (b) If the indications and the audio tone are normal, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do the Audio Tone Problem - Fault Isolation, 34-51 TASK 809.
 - (a) If the indications do not show on the display and the audio tone does not occur or is weak, then continue.
 - (b) If the indications shows on the display and the audio tone is normal, then you corrected the fault.
- (2) For VOR/marker beacon receiver, M1724, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - (a) If the VOR/Marker Beacon BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
 - 1) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
 - a) If the indications do not show on the display and the audio tone does not occur or is weak, then continue.
 - b) If the indications shows on the display and the audio tone is normal, then you corrected the fault.
 - (b) If the VOR/marker beacon BITE test does not show a fault, then continue.
- (3) Do this check of the wiring:
 - (a) Do the Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
 - (b) For the VOR/marker beacon receiver, M1724, do the VOR/MKR Receiver Removal, AMM TASK 34-51-01-000-801.
 - (c) Do a continuity check between the VOR/marker beacon receiver (VOR 1) and the REU:

VOR	REU
CONNECTOR	CONNECTOR
D3623B	D2501A
pin C4	pin A15
pin D4	pin A14
- (d) If there is no continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) Do the Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
 - 3) For the VOR/marker beacon receiver, M1724, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 4) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
 - a) If the audio tone is normal, then you corrected the fault for the audio tone, continue for the indications problem.
- (e) If there is continuity, then do this step and continue:
 - 1) Do the Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
- (4) Do this check of the wiring between the DEU and the VOR/marker beacon receiver:
 - (a) For the applicable DEU, do the Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (b) For the VOR/marker beacon receiver, M1724, do the VOR/MKR Receiver Removal, AMM TASK 34-51-01-000-801.

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- (c) Do a continuity check between the VOR/marker beacon receiver (VOR 1) and the applicable DEU:

	DEU CONNECTOR	VOR CONNECTOR
DEU 1	D3973B	D3623B
	pin C3	pin B13
	pin D3	pin C13
DEU 2	D3975B	D3623B
	pin C3	pin B13
	pin D3	pin C13

- (d) If there is no continuity, then do these steps:
- 1) Repair the wiring.
 - 2) For the VOR/marker beacon receiver, M1724, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 3) For the applicable DEU, do the Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
 - a) If the indications are normal, then you corrected the fault for the indications problem.
- (e) If there is continuity, then do these steps and continue:
- 1) For the VOR/marker beacon receiver, M1724, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 2) For the applicable DEU, do the Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- (5) Do this check of the applicable DEU if there are still indications problem:
- (a) Do the DEU Self-Test Procedure, 31-62 TASK 802.
 - (b) If the DEU shows FAILED, then do these steps:
 - 1) Do these tasks:
 - Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
 - Display Electronic Unit Installation, AMM TASK 31-62-21-400-801
 - 2) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
 - a) If the indications are normal, then you corrected the fault.
- (6) If there are still audio tone problems, replace the REU, M1353, do these tasks:
- Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801
 - Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802
- (a) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
 - 1) If the audio tone is normal, then you corrected the fault.

———— **END OF TASK** ————

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803. Audio Tone Normal, Indication Problem - Fault Isolation

A. Description

- (1) Indication does not show on the display when passing a marker, however audio tone is normal.

B. Possible Causes

- (1) VOR/marker beacon receiver, M1724
(2) DEU, M1808 (No. 1) or M1809 (No. 2)
(3) Wiring

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

D. Related Data

- (1) SSM 34-32-11
(2) WDM 34-32-11
(3) WDM 34-51-11

E. Initial Evaluation

- (1) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
(a) If the indication do not show on the display, then do the Fault Isolation Procedure below.
(b) If the indications are normal, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) For VOR/marker beacon receiver, M1724, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
(a) If the VOR/marker beacon BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
1) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
a) If the indication does not show on the display, then continue.
b) If the indication is normal, then you corrected the fault.
(b) If the VOR/marker beacon BITE test does not show a fault, then continue.
(2) Do this check of the wiring between the DEU and the VOR/marker beacon receiver:
(a) For the applicable DEU, do the Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
(b) For the VOR/marker beacon receiver, M1724, do the VOR/MKR Receiver Removal, AMM TASK 34-51-01-000-801.
(c) Do a continuity check between the VOR/marker beacon receiver (VOR 1) and the applicable DEU:

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	DEU CONNECTOR	VOR CONNECTOR
DEU 1	D3973B	D3623B
	pin C3	pin B13
	pin D3	pin C13
DEU 2	D3975B	D3623B
	pin C3	pin B13
	pin D3	pin C13

- (d) If there is no continuity, then do these steps:
- 1) Repair the wiring.
 - 2) For the VOR/marker beacon receiver, M1724, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 3) For the applicable DEU, do the Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
 - a) If the indications are normal, then you corrected the fault.
- (e) If there is continuity, then do these steps and continue:
- 1) For the VOR/marker beacon receiver, M1724, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 2) For the applicable DEU, do the Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- (3) Do this check of the applicable DEU:
- (a) Do the DEU Self-Test Procedure, 31-62 TASK 802.
 - (b) If the DEU shows FAILED, then do these steps:
 - 1) Replace the DEU, do these tasks:
 - Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
 - Display Electronic Unit Installation, AMM TASK 31-62-21-400-801
 - 2) Do the Marker Beacon System - System Test, AMM TASK 34-32-00-730-801.
 - a) If the indications are normal, then you corrected the fault.

———— **END OF TASK** ————

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801. Low Range Radio Altimeter (LRRR) BITE Procedure

A. General

- (1) You do the Low Range Radio Altimeter (LRRR) Built-In-Test Equipment (BITE) self-test at the front panel of the LRRR Receiver/Transmitter.
- (2) The LRRR system has two Receiver/Transmitters. The LRRR Receiver/Transmitters are on the E3 Rack in the Electronic Equipment (EE) Compartment.

SIA ALL; AIRPLANES WITH COLLINS OR THOMPSON LRRR

- (3) The LRRR Receiver/Transmitter BITE test does a self check for existing internal and external faults. Results of the BITE test are displayed on the front panel of the LRRR Receiver/Transmitter.

SIA ALL

- (4) There can be 5G interference to the radio altimeter signals because of the frequency spectrum (3.4 GHz - 4.2 GHz, 4.4 GHz - 4.9 GHz), antenna type, and power levels used by the 5G technology. The radio altimeters can become inoperative or can supply erroneous data, which can affect other systems on the airplane that use radio altimeter data. If you think that a 5G interference to the radio altimeter system has occurred, do this:
 - (a) Follow your airline policy for reporting the specific event.
 - (b) For more information refer to 737NG-FTD-34-21001.

B. BITE Procedure

- (1) Do the applicable BITE procedure for the LRRR Receiver/Transmitter.

NOTE: Refer to Maintenance Tip 737 MT 34-036 for additional LRRR troubleshooting information.

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- (2) Push and hold the TEST Switch on the front panel of the Receiver/Transmitter to start the BITE test.
 - (a) Make sure that these indications occur:
 - 1) All the lights come ON and then go OFF.
 - 2) The green light comes ON by its self.
 - 3) The green light goes out when the TEST Switch is released.
 - (b) Refer to the table at the end of this task to find the Fault Isolation Task for the applicable maintenance messages.

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LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
RADIO ALTIMTR	ANT RX	34-33 TASK 808
RADIO ALTIMTR	ANT TX	34-33 TASK 807
RADIO ALTIMTR	R/T UNIT	34-33 TASK 806

————— **END OF TASK** —————

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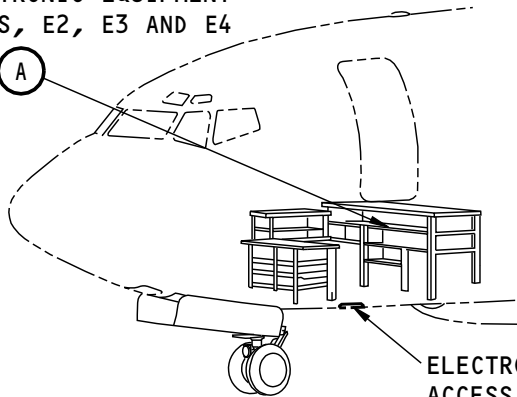
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ELECTRONIC EQUIPMENT
RACKS, E2, E3 AND E4

SEE (A)



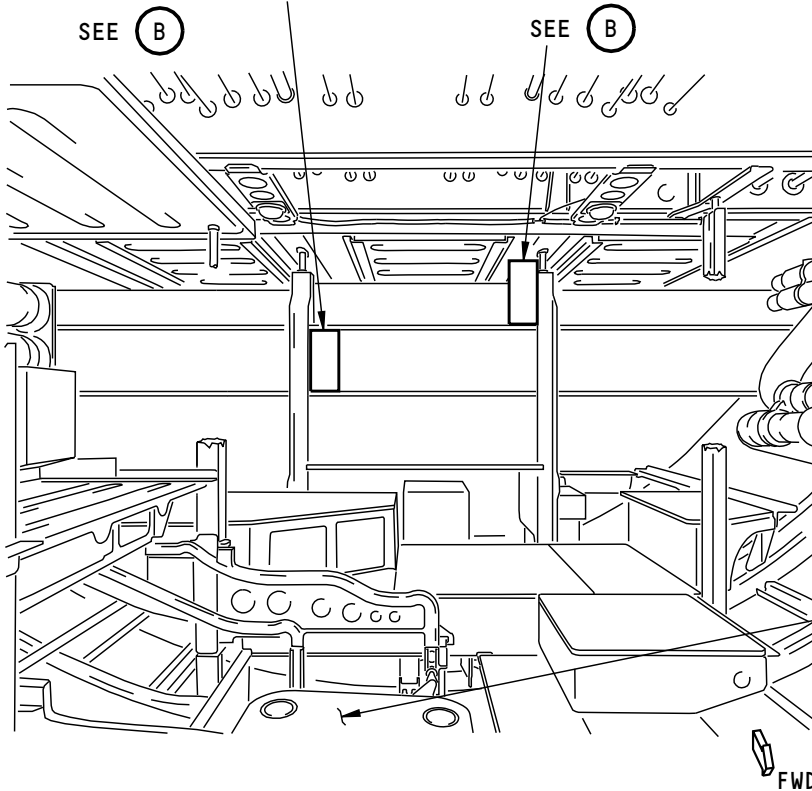
ELECTRONIC EQUIPMENT
ACCESS DOOR, 117A

[1] RIGHT RA RECEIVER/
TRANSMITTER, E3-2

SEE (B)

[1] LEFT RA RECEIVER/
TRANSMITTER, E3-1

SEE (B)



ELECTRONIC
EQUIPMENT
ACCESS
DOOR, 117A

FWD

ELECTRONIC EQUIPMENT RACKS, E2, E3 AND E4

(A)

G58759 S0006744130_V1

Low Range Radio Altimeter (LRRRA) Receiver/Transmitter
Figure 201/34-33-00-990-802 (Sheet 1 of 2)

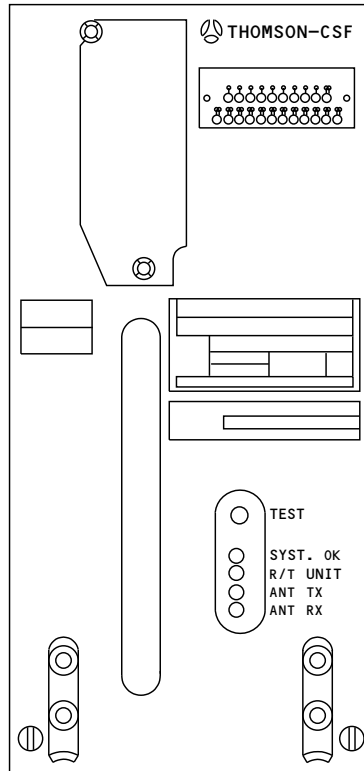
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RANGE RADIO ALTIMETER (LRRA) RECEIVER/TRANSMITTER

(B)

H16185 S0006744133_V1

Low Range Radio Altimeter (LRRA) Receiver/Transmitter
Figure 201/34-33-00-990-802 (Sheet 2 of 2)

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805. No Radio Altimeter Display and No Flags - Fault Isolation

A. Description

- (1) The LRRRA data goes to a no computed data (NCD) condition.

B. Possible Causes

- (1) LRRRA receiver/transmitter, M1735 (No. 1) or M1736 (No. 2).
(2) LRRRA transmit antenna, M1737 (No. 1) or M1738 (No. 2).
(3) LRRRA receive antenna, M1739 (No. 1) or M1740 (No. 2).
(4) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

D. Related Data

- (1) (SSM 34-33-11).
(2) (SSM 34-33-21).
(3) (WDM 34-33-11).
(4) (WDM 34-33-21).

E. Initial Evaluation

- (1) Do this task: Low Range Radio Altimeter (LRRRA) BITE Procedure, 34-33 TASK 801.
(a) If the radio altimeter display and the RA flag do not show on the captain's or F/O's displays, then do the Fault Isolation Procedure below.
(b) If the radio altimeter display shows on the captain's or F/O's displays, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Use a time domain reflectometer (TDR) test set time domain reflectometer, COM-5187to do an electrical check of the coaxial cable and antenna:
(a) Remove the LRRRA receiver/transmitter. To remove it, do this task: Low Range Radio Altimeter (LRRRA) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801.
(b) Connect the TDR test set time domain reflectometer, COM-5187at pins 71 and C71 of the applicable connector at the LRRRA receiver/transmitter (WDM 34-33-11, WDM 34-33-21).

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	TDR	LRRA CONNECTOR
LRRA-1 (M1735) XMTR ANTENNA	TEST SET	D3667B
	TDR	pin 71
	TDR	pin C71
LRRA-1 (M1735) RCVR ANTENNA	TEST SET	D3667A
	TDR	pin 71
	TDR	pin C71
LRRA-2 (M1736) XMTR ANTENNA	TEST SET	D3669B
	TDR	pin 71
	TDR	pin C71
LRRA-2 (M1736) RCVR ANTENNA	TEST SET	D3669A
	TDR	pin 71
	TDR	pin C71

- (c) Do an electrical check of the coaxial cable and the antenna.

NOTE: The TDR test set has instructions which tell how to do the check of the cable and antenna.

- (d) Disconnect the TDR test set time domain reflectometer, COM-5187.

- (e) Re-install the LRRA receiver/transceiver. To install it, do this task: Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.

- (f) If you find a problem with the coaxial cable, then do these steps:

- 1) Replace the coaxial cable (WDM 34-31-11).
- 2) Do this task: Low Range Radio Altimeter (LRRA) BITE Procedure, 34-33 TASK 801.
- 3) If the radio altimeter display shows on the captain's or F/O's displays, then you corrected the fault.

- (g) If you find a problem with the antenna, then do these steps:

- 1) Replace the LRRA antenna.

These are the tasks:

Low Range Radio Altimeter (LRRA) Antenna Removal (With Gasket), AMM TASK 34-33-11-000-803,

Low Range Radio Altimeter (LRRA) Antenna Installation (With Gasket), AMM TASK 34-33-11-400-803.

- 2) Do this task: Low Range Radio Altimeter (LRRA) BITE Procedure, 34-33 TASK 801.

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- 3) If the radio altimeter display shows on the captain's or F/O's displays, then you corrected the fault.

————— **END OF TASK** —————

806. Radio Altimeter Receiver/Transmitter Failed - Fault Isolation

A. Description

- (1) The task is for this maintenance message:
(a) R/T UNIT
(2) The radio altimeter receiver/transmitter has an internal failure.

B. Possible Causes

- (1) LRRA receiver/transmitter 1 (2) , M1735 (M1736)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

D. Related Data

- (1) SSM 34-33-11
(2) SSM 34-33-21
(3) WDM 34-33-11
(4) WDM 34-33-21

E. Initial Evaluation

- (1) Do this task: Low Range Radio Altimeter (LRRA) BITE Procedure, 34-33 TASK 801.
(a) If the red R/T UNIT Light comes ON, then do the Fault Isolation Procedure below.
(b) If the green SYSTEM OK Light comes ON, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Replace the LRRA receiver/transmitter 1 (2), M1735 (M1736). These are the tasks:
- Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801
 - Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801
- (a) If the green SYSTEM OK Light comes ON, then you corrected the problem.

————— **END OF TASK** —————

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34-33 TASKS 805-806

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807. LRRA Transmit Antenna Failed - Fault Isolation

A. Description

- (1) The task is for this maintenance message:
 - (a) ANT TX

B. Possible Causes

- (1) Transmitter antenna, M1737 (No. 1) or M1738 (No. 2).
- (2) Wiring.

NOTE: Moisture contamination between the antenna and the airplane skin or in the antenna co-ax connector can cause false altitude output from the Radio Altimeter system.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

D. Related Data

- (1) SSM 34-33-11
- (2) SSM 34-33-21
- (3) WDM 34-33-11
- (4) WDM 34-33-21

E. Initial Evaluation

- (1) Do this task: Low Range Radio Altimeter (LRRA) BITE Procedure, 34-33 TASK 801.
 - (a) If the red ANT TX Light stays ON, then do the Fault Isolation Procedure below.
 - (b) If the green SYSTEM OK Light comes ON, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Use a TDR time domain reflectometer, COM-5187, test set to do an electrical check of the coaxial cable and antenna:



CAUTION

YOU MUST PUT RF ABSORBENT MATERIAL ON THE ANTENNA BEFORE YOU USE THE TDR TEST SET. YOU CAN DAMAGE THE TEST SET IF A HIGH POWER TRANSMITTER OPERATES WITHIN 500 FEET OF THE ANTENNA.

- (a) Cover the applicable LRRA transmitter antenna with RF absorbent material.
- (b) Remove the applicable LRRA receiver/transmitter. This is the task: Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801.
- (c) Connect the TDR time domain reflectometer, COM-5187, test set at pins 71 and C71 of the applicable connector at the LRRA receiver/transmitter (WDM 34-33-11, WDM 34-33-21).

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	TDR TEST SET	LRRA CONNECTOR
LRRA-1 (M1735)	TDR TEST SET TDR pin 71 TDR pin C71	D3667B
LRRA-2 (M1736)	TDR TEST SET TDR pin 71 TDR pin C71	D3669

- (d) Do an electrical check of the coaxial cable and the antenna.
NOTE: The TDR test set has instructions which tell how to do the check of the cable and antenna.
- (e) Disconnect the TDR time domain reflectometer, COM-5187, test set .
- (f) Re-install the LRRA receiver/transceiver. This is the task: Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
- (g) If you find a problem with the coaxial cable, then do these steps:
- 1) Replace the applicable coaxial cable (WDM 34-33-11).
 - 2) Do this task: Low Range Radio Altimeter (LRRA) BITE Procedure, 34-33 TASK 801.
 - 3) Do the Repair Confirmation at the end of this task.
- (h) If you find a problem with the antenna, do these steps:
- 1) Replace the applicable LRRA antenna. These are the tasks:
 - Low Range Radio Altimeter (LRRA) Antenna Removal (With Gasket), AMM TASK 34-33-11-000-803
 - Low Range Radio Altimeter (LRRA) Antenna Installation (With Gasket), AMM TASK 34-33-11-400-803
 - 2) Do this task: Low Range Radio Altimeter (LRRA) BITE Procedure, 34-33 TASK 801.
 - 3) Do the Repair Confirmation at the end of this task

G. Repair Confirmation

- (1) If the green SYSTEM OK Light comes ON, then you corrected the problem.

———— **END OF TASK** ————

808. LRRA Receive Antenna Failed - Fault Isolation

A. Description

- (1) The task is for this maintenance message:
(a) ANT RX

B. Possible Causes

- (1) Receiver antenna, M1739 (No. 1) or M1740 (No. 2).
(2) Wiring

NOTE: Moisture contamination between the antenna and the airplane skin or in the antenna co-ax connector can cause false altitude output from the Radio Altimeter system.

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

D. Related Data

- (1) SSM 34-33-11
- (2) SSM 34-33-21
- (3) WDM 34-33-11
- (4) WDM 34-33-21

E. Initial Evaluation

- (1) Do this task: Low Range Radio Altimeter (LRRR) BITE Procedure, 34-33 TASK 801.
 - (a) If the red ANT RX Light stays ON, then do the Fault Isolation Procedure below.
 - (b) If the green SYSTEM OK Light comes ON, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Use a TDR time domain reflectometer, COM-5187, test set to do an electrical check of the coaxial cable and antenna:



CAUTION

YOU MUST PUT RF ABSORBENT MATERIAL ON THE ANTENNA BEFORE YOU USE THE TDR TEST SET. YOU CAN DAMAGE THE TEST SET IF A HIGH POWER TRANSMITTER OPERATES WITHIN 500 FEET OF THE ANTENNA.

- (a) Cover the applicable LRRR receiver antenna with RF absorbent material.
- (b) Remove the applicable LRRR receiver/transmitter. This is the task: Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801.
- (c) Connect the TDR time domain reflectometer, COM-5187, test set at pins 71 and C71 of the applicable connector at the LRRR receiver/transmitter (WDM 34-33-11, WDM 34-33-21).

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	TDR TEST SET	LRRA CONNECTOR
LRRA-1 (M1735)	TDR TEST SET	D3667A
	TDR	pin 71
	TDR	pin C71
LRRA-2 (M1736)	TDR TEST SET	D3669A
	TDR	pin 71
	TDR	pin C71

- (d) Do an electrical check of the coaxial cable and the antenna.
NOTE: The TDR test set has instructions which tell how to do the check of the cable and antenna.
- (e) Disconnect the TDR time domain reflectometer, COM-5187, test set.
- (f) Re-install the LRRA receiver/transceiver. This is the task: Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
- (g) If you find a problem with the coaxial cable, then do these steps:
- 1) Replace the applicable coaxial cable (WDM 34-33-11).
 - 2) Do this task: Low Range Radio Altimeter (LRRA) BITE Procedure, 34-33 TASK 801.
 - 3) If the green SYSTEM OK Light comes ON, then you corrected the problem.
- (h) If you find a problem with the antenna, then do these steps:
- 1) Replace the applicable LRRA antenna. These are the tasks:
 - Low Range Radio Altimeter (LRRA) Antenna Removal (With Gasket), AMM TASK 34-33-11-000-803
 - Low Range Radio Altimeter (LRRA) Antenna Installation (With Gasket), AMM TASK 34-33-11-400-803
 - 2) Do this task: Low Range Radio Altimeter (LRRA) BITE Procedure, 34-33 TASK 801.
 - 3) If the green SYSTEM OK Light comes ON, then you corrected the problem.

———— **END OF TASK** ————

809. 5G Interference of Radio Altimeter Signals

A. Description

- (1) There can be 5G interference to the radio altimeter signals because of the frequency spectrum (3.4 GHz - 4.2 GHz, 4.4 GHz - 4.9 GHz), antenna type, and power levels used by the 5G technology. The radio altimeters can become inoperative or can supply erroneous data, which can affect other systems on the airplane that use radio altimeter data.
- (a) If you suspect 5G interference to the radio altimeter signals may have occurred, follow your airline policy for reporting the specific event.
- (b) For more information refer to 737NG-FTD-34-21001.

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B. Initial Evaluation

- (1) This fault can only occur during flight. When the airplane is on the ground, it is not possible to simulate the conditions which cause this fault.
- (2) Do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) This observed fault can show when there is not a failure in the system.
 - (a) Additional information related to this observed fault is detailed in the Fault Description section.
- (2) A 5G network may have interfered with the radio altimeter operation. This can cause Flight Deck Messages or Flight Deck Effects related to the following systems:
 - Radio Altimeter
 - Autoflight
 - Autoland
 - Autothrottle
 - Auto Speedbrake
 - Spoilers
 - Traffic Alert and Collision Avoidance System (TCAS)
 - Ground Proximity Warning System (GPWS)
 - Windshear
 - Landing gear configuration
 - Engine Thrust
 - (a) If you find a problem with a system listed above, then do the related Fault Isolation Procedures to make sure that the fault is still active and do the applicable corrective actions.
 - (b) If the fault does not occur on the subsequent flights, then you corrected the fault.
- (3) Do a test of the Radio Altimeter system. This is the task: Low Range Radio Altimeter (LRRR) BITE Procedure, 34-33 TASK 801.
 - (a) If you find related maintenance messages, then do the applicable Fault Isolation Procedure to correct the fault.
 - (b) If the fault does not occur on the subsequent flights, then you corrected the fault.

————— **END OF TASK** —————

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801. Weather Radar System BITE Procedure

A. General

- (1) You do the Weather Radar (WXR) Receiver/Transmitter System BITE Test from the Instrument Switching Module, EFIS Control Panel and WXR Control Panel.

B. BITE Procedure

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- (1) Do the BITE Procedure for the Left (Right) WXR R/T.
- (a) Make sure that the Air Data Inertial Reference Unit (ADIRU) is aligned to the NAV Mode. This is the task: Air Data Inertial Reference System - Alignment from the ISDU, AMM TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, AMM TASK 34-21-00-820-801.
- (b) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT



DO NOT OPERATE THE WEATHER RADAR WITHIN 3.3 FEET (1 METER) OF REFUELING OR DE-FUELING OPERATIONS, A FUEL SPILL OR OPEN FUEL CELLS. OPERATION OF THE WEATHER RADAR WITHIN THE 3.3 FEET (1 METER) LIMIT CAN CAUSE A FIRE OR EXPLOSION. A FIRE OR EXPLOSION CAN CAUSE INJURY OR DEATH TO PERSONNEL AND DAMAGE TO EQUIPMENT.



DO NOT OPERATE THE WEATHER RADAR WHEN PERSONNEL ARE IN THE AREA USUALLY ENCLOSED BY THE AIRCRAFT NOSE RADOME OR IN A HANGAR. THESE CONDITIONS CAN CAUSE INJURY TO PERSONNEL.

- (c) On the Instrument Switching Module, put the SOURCE Switch to the ALL ON 1 position.
- (d) On the WXR Control Panel, put the L/R Switch to the Left (OUT) position to do the BITE Test of the Left WXR R/T.

NOTE: The L/R Switch on the Control Panel changes between the Left and Right Transceivers.

- (e) On the Captain's EFIS Control Panel, push the WXR Power Switch to the ON position.

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- (f) On the WXR Control Panel, put the Mode Selector Switch to the TEST position.

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- (g) Make sure that these indications occur:

NOTE: All times are approximate.

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- 1) In 0-3 seconds:
 - a) An Amber WINDSHEAR shows on the Captain's Display Unit (DU).
 - b) The Aural Message MONITOR RADAR DISPLAY is heard on the Flight Deck Aural Warning Speakers.
 - 2) In 3-9 seconds:
 - a) A PWS FAIL Message shows on the Captain's DU.
 - 3) In 9-12 seconds:
 - a) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the Flight Deck Aural Warning Speakers.
 - b) A Red WINDSHEAR shows on the Captain's DU.
 - 4) After 15 seconds:
 - a) Make sure that the WXR Test Display on the Captain's DU has a multi-colored pattern.
- (h) On the WXR Control Panel, put the "L/R" Switch to the Right (in) position to do the BITE Test of the Right WXR R/T.
- NOTE: The "L/R" Switch on the Control Panel changes between the Left and Right Transceivers
- (i) On the Captain's EFIS Control Panel, push the WXR Power Switch to the ON position.

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- (j) On the WXR Control Panel, put the Mode Selector Switch to the TEST position.

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- (k) Make sure that these indications occur:

NOTE: All times are approximate.

- 1) In 0-3 seconds:
 - a) An Amber WINDSHEAR shows on the Captain's DU.
 - b) The Aural Message MONITOR RADAR DISPLAY is heard on the Flight Deck Aural Warning Speakers.
 - 2) In 3-9 seconds:
 - a) A PWS FAIL Message shows on the Captain's DU.
 - 3) In 9-12 seconds:
 - a) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the Flight Deck Aural Warning Speakers.
 - b) A Red WINDSHEAR shows on the Captain's DU.
 - 4) After 15 seconds:
 - a) Make sure that the WXR Test Display on the Captain's DU has a multi-colored pattern.
- (l) On the Instrument Switching Module, put the SOURCE Switch to the ALL ON 2 position.

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- (m) On the WXR Control Panel, put the "L/R" Switch to the Left (OUT) position to do a BITE Test of the Left WXR R/T.

NOTE: The "L/R" Switch on the Control Panel changes between the Left and Right Transceivers.

- (n) On the First Officer's EFIS Control Panel, push the WXR Power Switch to the ON position.

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- (o) On the WXR Control Panel, put the Mode Selector Switch to the TEST position.

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- (p) Make sure that these indications occur:

NOTE: All times are approximate.

- 1) In 0-3 seconds:
 - a) An Amber WINDSHEAR shows on the First Officer's DU.
 - b) The Aural Message MONITOR RADAR DISPLAY is heard on the Flight Deck Aural Warning Speakers.
- 2) In 3-9 seconds:
 - a) A PWS FAIL Message shows on the First Officer's DU.
- 3) In 9-12 seconds:
 - a) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the Flight Deck Aural Warning Speakers.
 - b) A Red WINDSHEAR shows on the First Officer's DU.
- 4) After 15 seconds:
 - a) Make sure that the WXR Test Display on the First Officer's DU has a multi-colored pattern.

- (q) On the WXR Control Panel, put the "L/R" Switch to the Right (IN) position to do a BITE Test of the Right WXR R/T.

NOTE: The "L/R" Switch on the Control Panel changes between the Left and Right Transceivers

- (r) On the First Officer's EFIS Control Panel, push the WXR Power Switch to the ON position.

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- (s) On the WXR Control Panel, put the Mode Selector Switch to the TEST position.

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- (t) Make sure that these indications occur:

NOTE: All times are approximate.

- 1) In 0-3 seconds:
 - a) An Amber WINDSHEAR shows on the First Officer's DU.
 - b) The Aural Message MONITOR RADAR DISPLAY is heard on the Flight Deck Aural Warning Speakers.
- 2) In 3-9 seconds:

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- a) A PWS FAIL Message shows on the First Officer's DU.
- 3) In 9-12 seconds:
 - a) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the Flight Deck Aural Warning Speakers.
 - b) A Red WINDSHEAR shows on the First Officer's DU.
- 4) After 15 seconds:
 - a) Make sure that the WXR Test Display on the First Officer's DU has a multi-colored pattern.
- (u) On the Instrument Switching Module, put the SOURCE Switch to the AUTO position.
- (v) Make sure that the Test Pattern stays on the Captain's and First Officer's DUs.
- (w) On the Captain's EFIS Control Panel, push the WXR Power Switch to the to the OFF position.

NOTE: These steps make sure that the WXR Power Switch on the First Officer's EFIS Control Panel operates correctly.

 - 1) Make sure the WXR Data on the Captain's DU is removed.
 - 2) Make sure the Test Pattern stays on the First Officer's DU.
- (x) On the Captain's EFIS Control Panel, push the WXR Power Switch to the to the ON position.
 - 1) Make sure that WXR FAIL does not show on the Captain's or First Officer's DU.
 - 2) If WXR FAIL shows on the Captain's or First Officer's DU, then refer to the applicable Maintenance Message Index to find the Fault Isolation Manual (FIM) Task and troubleshoot the problem.

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LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
WEATHER RADAR	ANT	34-43 TASK 803
WEATHER RADAR	CON	34-43 TASK 804
WEATHER RADAR	COOLING FAULT	34-43 TASK 805
WEATHER RADAR	No map unreg 28 volts	34-43 TASK 802
WEATHER RADAR	RT	34-43 TASK 802
WEATHER RADAR	WEAK	34-43 TASK 802
WEATHER RADAR	tilt code +1	34-43 TASK 806
WEATHER RADAR	tilt code +2	34-43 TASK 807
WEATHER RADAR	tilt code +3	34-43 TASK 806
WEATHER RADAR	tilt code +4	34-43 TASK 816
WEATHER RADAR	tilt code -1	34-43 TASK 806
WEATHER RADAR	tilt code -2	34-43 TASK 807
WEATHER RADAR	tilt code -3	34-43 TASK 806
WEATHER RADAR	tilt code -4	34-43 TASK 816

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LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
WEATHER RADAR	tilt code -5	34-43 TASK 817
WEATHER RADAR	tilt code -6	34-43 TASK 818
WEATHER RADAR	tilt code -7	34-43 TASK 819
WEATHER RADAR	tilt code -8	34-43 TASK 821

———— **END OF TASK** ————

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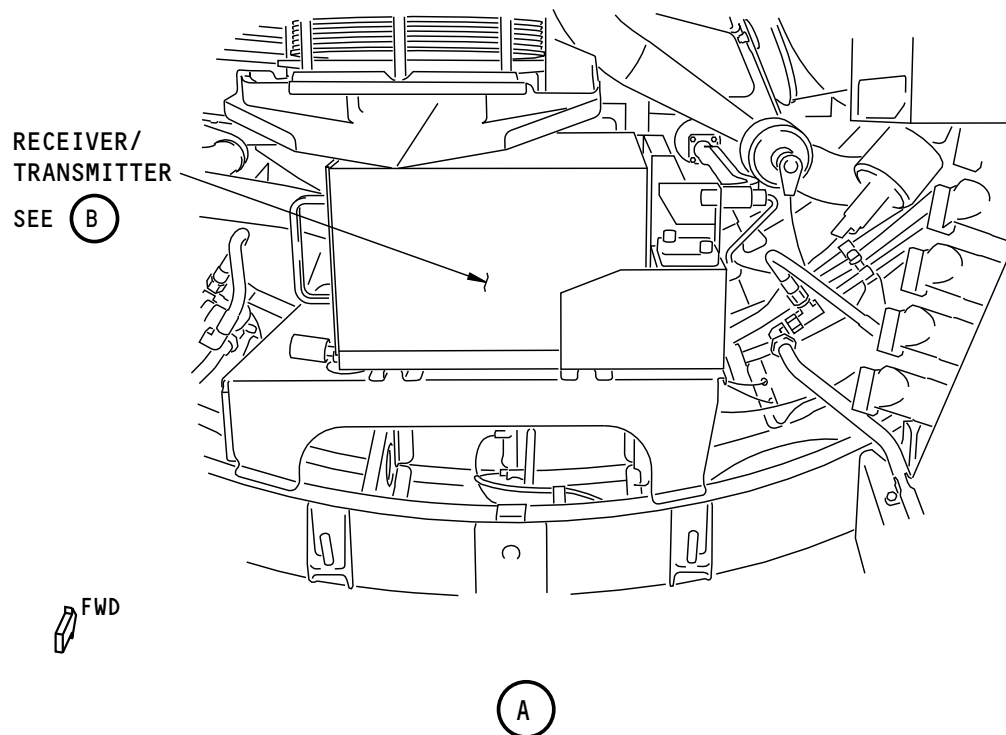
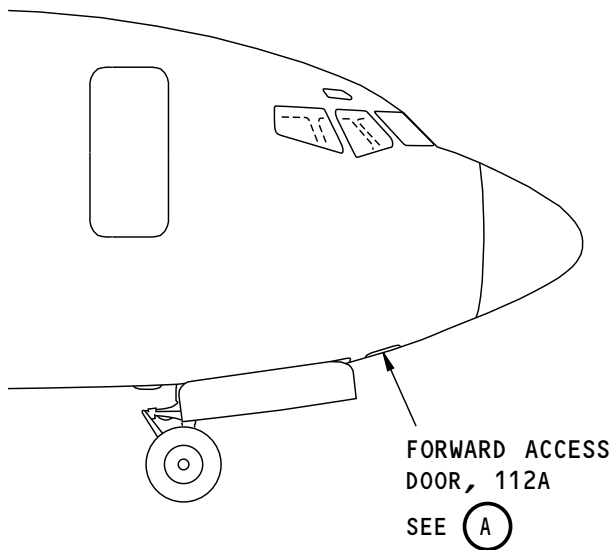
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Weather Radar Receiver/Transmitter
Figure 201/34-43-00-990-803 (Sheet 1 of 3)

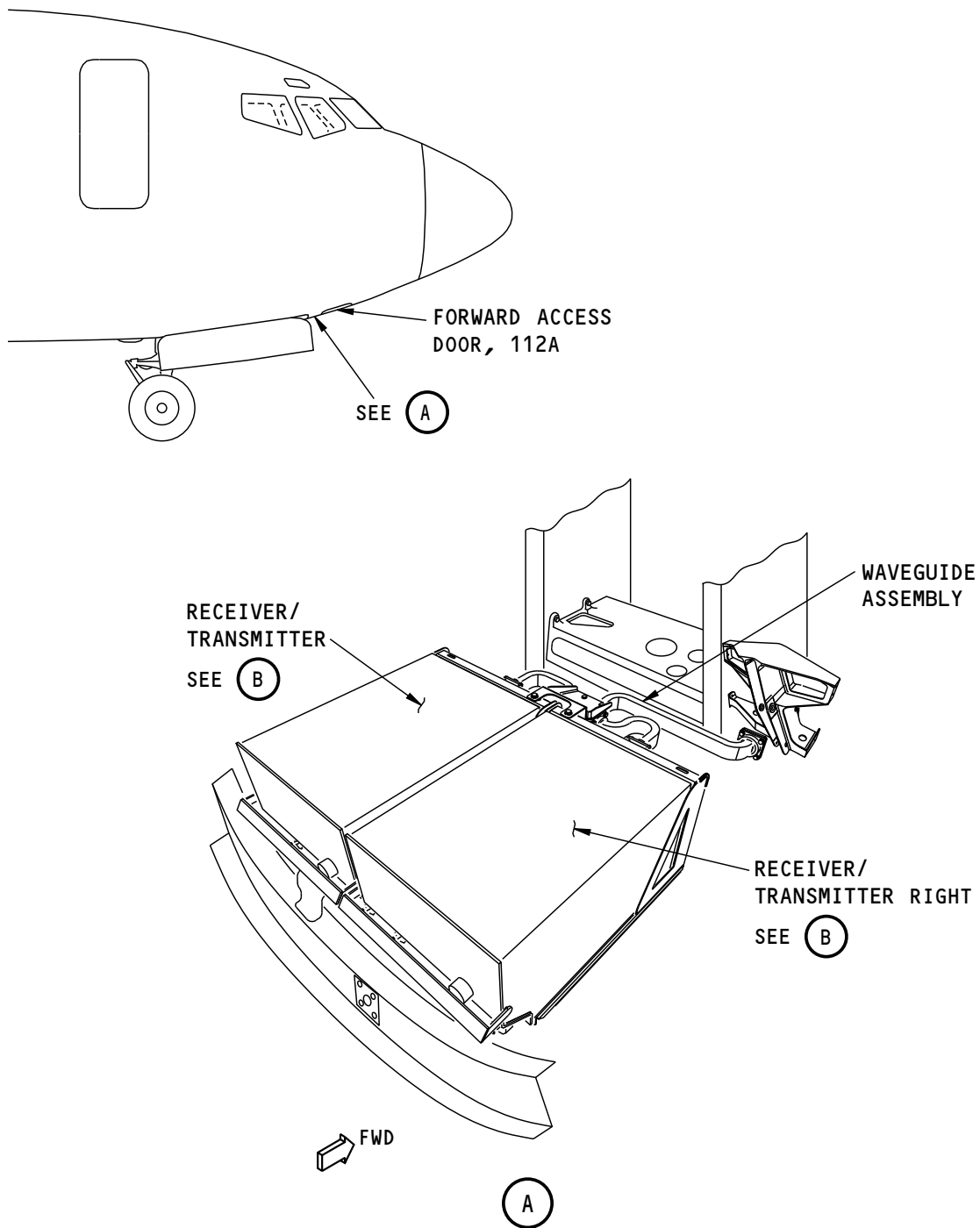
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1500934 S0000273191_V1

Weather Radar Receiver/Transmitter
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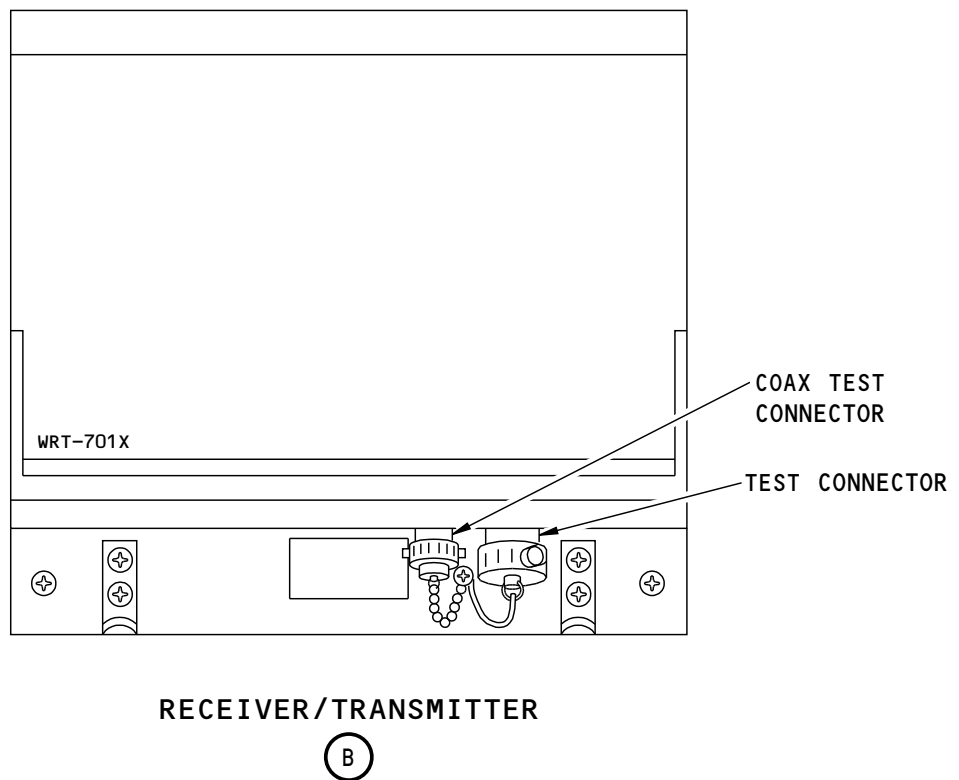
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Weather Radar Receiver/Transmitter
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802. Weather Radar Receiver/Transmitter Problem - Fault Isolation

A. Description

- (1) The Weather Radar Operational Test fails and shows one of these messages on the CAPT (F/O) DU:
 - (a) RT
 - (b) WEAK

B. Possible Causes

- (1) WXR Receiver/Transmitter, M101
- (2) WXR Waveguide Assembly
- (3) Left (Right) Weather Radar Receiver/Transmitter, M101 (M460)
- (4) Waveguide Switch, S1142

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

D. Related Data

- (1) WDM 34-41-11
- (2) SSM 34-41-11

E. Initial Evaluation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Operational Test passes, then there was an intermittent fault.
 - (b) If the Operational Test fails with the RT or WEAK message on the CAPT (F/O) DU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the WXR Receiver/Transmitter, M101. These are the tasks:
 - Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (2) Do a visual check of the WXR Waveguide.
 - (a) Make sure that the Waveguide connection to the Antenna Drive Assembly is attached correctly.
 - (b) Examine the WXR Waveguide for damage, dirt and moisture.
 - (c) If you find a problem with the Waveguide Assemblies, then replace the WXR Waveguide. These are the tasks:

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- WXR Waveguide Removal, AMM TASK 34-43-21-000-801
 - WXR Waveguide Installation, AMM TASK 34-43-21-400-801
- (d) Do the Repair Confirmation at the end of this task.
- (3) Replace the Left (Right) Weather Radar Receiver/Transmitter, M101 (M460). These are the tasks:
- Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (4) Do a visual check of the WXR Waveguide.
- (a) Make sure that the Waveguide connection to the Antenna Drive Assembly is attached correctly.
- (b) Examine the WXR Waveguide for damage, dirt and moisture.
- (c) If you find a problem with the Waveguide Assemblies, then replace the WXR Waveguide. These are the tasks:
- WXR Waveguide Removal, AMM TASK 34-43-21-000-801
 - WXR Waveguide Installation, AMM TASK 34-43-21-400-801
- (d) Do the Repair Confirmation at the end of this task.
- (5) Do a visual check of the WXR Waveguide Switch, S1142.
- (a) Make sure that the Waveguide Switch, S1142 is attached correctly to the electrical connector and WXR Waveguide.
- (b) Examine the Waveguide Switch for damage, dirt and moisture.
- (c) If you find a problem with the Waveguide Switch, then replace it. These are the tasks:
- WXR Waveguide Switch Removal, AMM TASK 34-43-71-000-801
 - WXR Waveguide Switch Installation, AMM TASK 34-43-71-400-801

G. Repair Confirmation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
- (a) If the Operational Test passes, and no maintenance messages show, then you corrected the problem.
- (b) If the Operational Test passes, then you corrected the problem.
- (c) If the Operational Test fails with the RT or WEAK message on the CAPT (F/O) DU, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

803. Weather Radar Antenna Problem - Fault Isolation

A. Description

- (1) The Weather Radar Operational Test fails and shows this message on the CAPT (F/O) DU:
- (a) ANT

B. Possible Causes

- (1) Weather Radar Antenna Drive Unit, M1209
- (2) Weather Radar Receiver/Transmitter, M101

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- (3) Left (Right) Weather Radar Receiver/Transmitter, M101 (M460)
- (4) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

D. Related Data

- (1) WDM 34-41-11
- (2) WDM 34-41-21
- (3) SSM 34-41-11
- (4) SSM 34-41-21

E. Initial Evaluation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Operational Test passes, and no maintenance messages show, then there was an intermittent fault.
 - (b) If the Operational Test fails with the ANT message on the CAPT (F/O) DU or a maintenance message shows on the WXR Receiver/Transmitter Front Panel Display, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

NOTE: Invalid or no data from the Radio Altimeter System, the Air Data System, or the Inertial Reference System (IRS), will generate the AUTOTILT FAIL Annunciation.

The loss of Inertial Reference Unit (IRU) data will also generate the WXR ATT message.

If the entire bus has missing data, the PWS FAIL fault will show with the AUTOTILT FAIL message.

- (1) Replace the Weather Radar Antenna Drive, M1209. These are the tasks:
 - Weather Radar Antenna Flat Plate Removal, AMM TASK 34-43-11-000-801
 - Weather Radar Antenna Drive Unit Removal, AMM TASK 34-43-11-000-802
 - Weather Radar Antenna Drive Unit Installation, AMM TASK 34-43-11-400-802
 - Weather Radar Antenna Flat Plate Installation, AMM TASK 34-43-11-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (2) Replace the WXR Receiver/Transmitter, M101. These are the tasks:
 - Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
 - (a) Do the Repair Confirmation at the end of this task.

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- (3) Do this check of the wiring between the Weather Radar Receiver/Transmitter and the Weather Radar Antenna Drive Unit as follows:
- (a) Remove the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Disconnect the Weather Radar Antenna Drive Unit connector, D119.
 - (c) Examine the wiring between the WXR Receiver/Transmitter and the Weather Radar Antenna Drive Unit as follows (WDM 34-41-11):

**WXR ANT
DRIVE UNIT
D119**

pin i	pin 3
pin z	pin 8

**WXR R/T
D189C**

D119	D189B
pin s	pin C13
pin t	pin C14
pin D	pin C10
pin E	pin C11
pin F	pin C12
pin p	pin E13
pin q	pin E14
pin A	pin E10
pin B	pin E11
pin C	pin E12
pin HH	pin D11

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-connect the Weather Radar Antenna Drive Unit connector, D119.
 - 4) Do the Repair Confirmation at the end of this task.
- (4) Replace the Weather Radar Antenna Drive, M1209. These are the tasks:
 - Weather Radar Antenna Flat Plate Removal, AMM TASK 34-43-11-000-801
 - Weather Radar Antenna Drive Unit Removal, AMM TASK 34-43-11-000-802
 - Weather Radar Antenna Drive Unit Installation, AMM TASK 34-43-11-400-802
 - Weather Radar Antenna Flat Plate Installation, AMM TASK 34-43-11-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (5) Replace the Left (Right) Weather Radar Receiver/Transmitter, M101 (M460). These are the tasks:
 - Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
 - (a) Do the Repair Confirmation at the end of this task.

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- (6) Do this check of the wiring between the Left (Right) WXR Receiver/Transmitter and the Weather Radar Antenna Drive Unit.
- (a) Remove the Left (Right) WXR Receiver/Transmitter, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Disconnect the weather radar antenna drive unit connector D119 (D2923).
 - (c) Do a wiring check between the Left (Right) WXR Receiver/Transmitter and the Weather Radar Antenna Drive Unit as follows (WDM 34-41-11, WDM 34-41-21):

D119 (D2923)	D189C (D673C)
pin i	pin 3
pin z	pin 8

D119 (D2923)	D189B (D673B)
pin s	pin C13
pin t	pin C14
pin D	pin C10
pin E	pin C11
pin F	pin C12
pin P	pin E13
pin Q	pin E14
pin A	pin E10
pin B	pin E11
pin C	pin E12
pin HH	pin D11

- (d) If you find a problem with the wiring, do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the Left (Right) WXR Receiver/Transmitter, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-connect the Left (Right) Weather Radar Antenna Drive Unit connector, D119 (D2923).
 - 4) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Operational Test passes, and no maintenance messages show, then you corrected the problem.
 - (b) If the Operational Test fails with the ANT message on the CAPT (F/O) DU, or a maintenance message shows on the WXR Receiver/Transmitter Front Panel Display, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

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804. Weather Radar Control Panel Problem - Fault Isolation

A. Description

- (1) The Weather Radar Operational Test fails and shows one of these messages on the CAPT (First Officer (F/O)) DU:
 - (a) CON
 - (b) CONT

B. Possible Causes

- (1) Weather Radar Control Panel, P8-52
- (2) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

D. Related Data

- (1) WDM 34-41-11
- (2) WDM 34-41-21
- (3) SSM 34-41-11
- (4) SSM 34-41-21

E. Initial Evaluation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the weather radar operational test passes and no maintenance messages show, then there was an intermittent fault.
 - (b) If the Operational Test fails with the CON message on the CAPT (F/O) DU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the Weather Radar Control Panel, P8-52, do these tasks:
 - Weather Radar Control Panel Removal, AMM TASK 34-43-91-000-801
 - Weather Radar Control Panel Installation, AMM TASK 34-43-91-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (2) Do this check of the wiring between the Weather Radar Control Panel, and the WXR Receiver/Transmitter:
 - (a) Remove the WXR Receiver/Transmitter, M101, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the Weather Radar Control Panel, do this task: Weather Radar Control Panel Removal, AMM TASK 34-43-91-000-801.

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- (c) Examine the wiring as follows (WDM 34-41-11)

WXR CTRL PNL	WXR R/T
D193	D189B
pin D	pin D8
pin V	pin B6
pin K	pin C6
pin L	pin D6
pin M	pin D7
pin h	pin B7
pin j	pin B8

- 1) If you find a problem with the wiring, do these steps:
 - a) Repair the wiring.
 - b) Re-install the WXR Receiver/Transmitter, M101, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - c) Re-install the Weather Radar Control Panel, do this task: Weather Radar Control Panel Installation, AMM TASK 34-43-91-400-801.
 - 2) Do the Repair Confirmation at the end of this task.
- (3) Do this check of the wiring between the Weather Radar Control Panel and the Left (Right) WXR Receiver/Transmitter, M101 (M460):
- (a) Remove the Left (Right) WXR Receiver/Transmitter, M101 (M460), do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the Weather Radar Control Panel, do this task: Weather Radar Control Panel Removal, AMM TASK 34-43-91-000-801.
 - (c) Examine the wiring as follows (WDM 34-41-11, WDM 34-41-21):

D193 (D2925)	D189B (D673B)
pin V	pin B6
pin K	pin C6
pin L	pin D6
pin M	pin D7
pin h	pin B7
pin j	pin B8

- 1) If you find a problem with the wiring, do these steps:
 - a) Repair the wiring.
 - b) Re-install the Left (Right) WXR Receiver/Transmitter, M101 (M460), do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - c) Re-install the Weather Radar Control Panel, do this task: AMM TASK 34-43-91-400-801.
- 2) Do the Repair Confirmation at the end of this task.

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G. Repair Confirmation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Operational Test passes, and no maintenance messages show, then you corrected the problem.
 - (b) If the Operational Test fails with the CON message on the CAPT (F/O) DU, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

805. Weather Radar Cooling Problem - Fault Isolation

A. Description

- (1) The Weather Radar (WXR) Receiver/Transmitter found a fault with the Cooling System.

B. Possible Causes

- (1) Weather Radar Receiver/Transmitter Mount, M103
- (2) Weather Radar Receiver/Transmitter, M101
- (3) Left (Right) Weather Radar Receiver/Transmitter Mount, M103 (M2673)
- (4) Left (Right) Weather Radar Receiver/Transmitter, M101 (M460)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

D. Related Data

- (1) WDM 34-41-11
- (2) WDM 34-41-21
- (3) SSM 34-41-11
- (4) SSM 34-41-21

E. Initial Evaluation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Operational Test passes, then there was an intermittent fault.
 - (b) If the Operational Test fails, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the Weather Radar Receiver/Transmitter Cooling System:

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

- 1) If the fan comes ON, then do these steps:

Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

- a) Remove the Weather Radar Receiver/Transmitter. This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
- b) Look for objects or dust that can stop the Weather Radar Receiver/Transmitter air flow.
- <1> Remove the unwanted objects that stop the air flow.
- c) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
- 2) If the fan does not come ON, then do these steps:

- a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

- b) Examine the wiring between the Load Control Center-Right (LCC-R) and the WXR Mount, M103 as follows (WDM 34-41-11):

LCC-R (P6)	WXR MOUNT
D40800P	D2273
pin 37	pin C

WXR MOUNT	
D2273	
pin E	GND

- c) Examine the wiring between the WXR Mount, M103 and the WXR XMTR-RCVR, M101 as follows and (WDM 34-41-11):

WXR MOUNT	M103
D189C	D2273
pin 9	pin A

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**WXR
XMTR/RCVR
D189C**

pin 7 GND
pin 11 GND

- d) If you find the problem with the wiring, then do these steps:
- <1> Repair the wiring.
 - <2> Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

<3> Do the Repair Confirmation at the end of this task.

- e) If you do not find the problem with the wiring, then continue.
- (b) Replace the WXRWXR Receiver/Transmitter Mount, M103. These are the tasks:
- Weather Radar Receiver/Transmitter Mount Removal, AMM TASK 34-43-31-000-801
 - Weather Radar Receiver/Transmitter Mount Installation, AMM TASK 34-43-31-400-801

Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

- 1) Do the Repair Confirmation at the end of this task.
- (2) Do this check of the Left (Right) Weather Radar Receiver/Transmitter Cooling Systems:
- (a) On the EFIS Control Panel, select WXR ON.
- 1) If the fan comes ON, then do these steps:
- a) Remove the Left (Right) WXR Receiver/Transmitter, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - b) Look for objects or dust that can stop the air flow to the Left (Right) Weather Radar Receiver/Transmitter.
 - <1> Remove the unwanted objects that stop the air flow.
 - c) Re-install the Left (Right) WXR Receiver/Transmitter, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
- 2) If the fan does not come ON, then replace the Left (Right)WXRReceiver/Transmitter Mount, M103 (M2673). These are the tasks:
- Weather Radar Receiver/Transmitter Mount Removal, AMM TASK 34-43-31-000-801
 - Weather Radar Receiver/Transmitter Mount Installation, AMM TASK 34-43-31-400-801
- (b) Do the Repair Confirmation at the end of this task.

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G. Repair Confirmation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Operational Test passes, and no maintenance message shows, then you corrected the problem.

————— **END OF TASK** —————

806. Weather Radar System, Inertial Reference System Problem - Fault Isolation

A. Description

- (1) This message shows on the CAPT (F/O) DU:
 - (a) STAB
- (2) This task is for these Observed Faults:
 - Tilt Code “-1” Attitude - Left
 - Tilt Code “+1” Attitude - Right
 - Tilt Code “-3” Air Data - Left
 - Tilt Code “+3” Air Data - Right
- (3) The WXR System found a problem with the data sent from the IRS function of the ADIRU.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)
- (2) WXR Receiver/Transmitter, M101
- (3) Left (Right) WXR Receiver/Transmitter, M101 (M460)
- (4) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC
D	13	C00120	WEATHER RADAR RT

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D. Related Data

- (1) WDM 34-41-11
- (2) WDM 34-41-21
- (3) WDM 34-21-13
- (4) WDM 34-21-23
- (5) WDM 34-21-14
- (6) WDM 34-21-24
- (7) SSM 34-41-11
- (8) SSM 34-41-21

E. Initial Evaluation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Weather Radar Operational Test passes, then there was an intermittent fault.
 - (b) If the Weather Radar Operational Test fails and WXR FAIL/ATT shows on the CAPT DU, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If you find CURRENT STATUS faults, then do these steps:
 - 1) Refer to the table at the end of the Air Data Inertial Reference System (ADIRS) Built-In-Test Equipment (BITE) Task to find and do the applicable FIM Tasks for the maintenance messages that show.
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find ADIRS System related CURRENT STATUS faults, then continue.
- (2) Do this check of the wiring between the Left (Right) ADIRU (E5-2 Shelf) and the WXR Receiver/Transmitter.
 - (a) Remove the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (c) Examine the wiring between Left ADIRU, M1749 and the WXR Receiver/Transmitter, M101 as follows (WDM 34-21-13):

Tilt Codes "-1" and "-3"

L ADIRU	WXR R/T
D3687B	D189B
pin C10	pin J11
pin C11	pin J12
D3687A	D189B
pin A9	pin K11
pin B9	pin K12

- (d) Examine the wiring between Right ADIRU, M1752 and the WXR Receiver/Transmitter, M101 as follows (WDM 34-21-13):

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Tilt Codes "+1" and "+3"

R ADIRU	WXR R/T
D3693B	D189B
pin C10	pin G12
pin C11	pin G13
 D3693A	 D189B
pin A9	pin J9
pin B9	pin J10

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the Left ADIRU, M1749. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 4) Do the Repair Confirmation at the end of this task.
- (f) If you do not find a problem with the wiring, then do these steps and continue.
- 1) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (3) Replace the WXR Receiver/Transmitter, M101. These are the tasks:
- Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (4) Do this task: ADIRS BITE Procedure, 34-21 TASK 801.
- (a) If you find CURRENT STATUS faults, then do these steps:
- 1) Refer to the table at the end of the ADIRS BITE Task to find and do the applicable FIM Tasks for the maintenance messages that show.
 - 2) Do the Repair Confirmation at the end of this task.
- (b) If you do not find ADIRS System related CURRENT STATUS faults, then continue.
- (5) Do this check of the wiring between the Left (Right) ADIRU (E5-2 Shelf) and the Left (Right) WXR Receiver/Transmitter, M101 (M460).
- (a) Remove the Left (Right) WXR Receiver/Transmitter, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (c) Examine the wiring between the Left ADIRU, M1749 and the Left (Right) WXR Receiver/Transmitter, M101 (M460) as follows (WDM 34-21-13, WDM 34-21-14):

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Tilt Codes "-1" and "-3"

L ADIRU	L (R) WXR R/T
D3687B	D189B
pin C10	pin J11
pin C11	pin J12
D3687B	D673B
pin G7	pin G12
pin G8	pin G13
D3687A	D189B
pin A3	pin K11
pin B3	pin K12
D3687A	D673B
pin A9	pin J9
pin B9	pin J10

- (d) Examine the wiring between the Right ADIRU, M1752 and the Left (Right) WXR Receiver/Transmitter, M101 (M460) as follows (WDM 34-21-23, WDM 34-21-24:

Tilt Codes "+1" and "+3"

R ADIRU	L (R) WXR R/T
D3693B	D189B
pin G7	pin G12
pin G8	pin G13
D3693B	D673B
pin C10	pin J11
pin C11	pin J12
D3693A	D189B
pin A9	pin J9
pin B9	pin J10
D3693A	D673B
pin A3	pin K11
pin B3	pin K12

- (e) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the Left (Right) WXR Receiver/Transmitter, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 4) Do the Repair Confirmation at the end of this task.
- (f) If you do not find a problem with the wiring, then do these steps and then continue:

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- 1) Re-install the Left (Right) WXR Receiver/Transmitter, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the Left (Right) ADIRU, M1749 (M1752). This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (6) Replace the applicable Left (Right) WXR Receiver/Transmitter, M101 (M460). These are the tasks:
- Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Operational Test passes, then you corrected the problem.
 - (b) If the Operational Test fails and WXR FAIL/ATT shows on the CAPT (F/O) DU, then continue the Fault Isolation Procedure at the subsequent step.

END OF TASK

807. Weather Radar System, Radio Altimeter Problem - Fault Isolation

A. Description

- (1) This task is for these WXR System Observed Faults:
 - (a) Tilt Code "-2" Radio Altitude - Left
 - (b) Tilt Code "+2" Radio Altitude - Right
- (2) The WXR System found a problem with the data sent from the Radio Altimeters.

B. Possible Causes

- (1) Left (Right) Low Range Radio Altimeter (LRRR), M1735 (M1736)
- (2) WXR Receiver/Transmitter, M101
- (3) Left (Right) WXR Receiver/Transmitter, M101 (M460)
- (4) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

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D. Related Data

- (1) WDM 34-41-11
- (2) WDM 34-41-21
- (3) WDM 34-33-11
- (4) WDM 34-33-21
- (5) SSM 34-41-11
- (6) SSM 34-41-21

E. Initial Evaluation

- (1) Do the Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001 on the Left (Right) LRRA depending on the Tilt Code .

NOTE: The Left LRRA, is associated to Tilt Code "-2".

The Right LRRA, is associated to Tilt Code "+2".

- (a) If the Tilt Code does not show, then there was an intermittent fault.
- (b) If the Tilt Code shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the Left (Right) LRRA, M1735 (M1736), applicable to Tilt Code "-2" (Tilt Code "+2"). These are the tasks:
 - Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801
 - Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (2) Do this check of the wiring between the Left (Right) LRRA and the WXR Receiver/Transmitter, M101.
 - (a) Remove the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the applicable Left (Right) LRRA, M1735 (M1736). This is the task: Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801.
 - (c) Examine the wiring between the Left (Right) LRRA at the E3-1 (E3-2) Shelf, and the WXR Receiver/Transmitter at the Forward Equipment Center as follows (WDM 34-33-11, WDM 34-33-21):

TILT CODE "-2"

L LRRA	WXR R/T
D3667B	D189B
pin G2	pin C1
pin G3	pin C2

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TILT CODE "+2"

R LRRA	WXR R/T
D3669B	D189B
pin G2	pin A5
pin G3	pin A6

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the applicable Left (Right) LRRA, M1735 (M1736). This is the task: Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
 - 4) Do the Repair Confirmation at the end of this task.
- (e) If you do not find a problem with the wiring, do these steps and then continue.
- 1) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the Left LRRA, M1735. This is the task: Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
- (3) Replace the WXR Receiver/Transmitter, M101. These are the tasks:
- Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (4) Replace the Left (Right) LRRA, M1735 (M1736), applicable to Tilt Code "-2" (Tilt Code "+2"). These are the tasks:
- Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801
 - Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (5) Do this check of the wiring between the Left (Right) LRRA and the Left (Right) WXR Receiver/Transmitter, M101 (M460).
- (a) Remove the Left (Right) WXR Receiver/Transmitter, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the applicable Left (Right) LRRA, M1735 (M1736). This is the task: Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801.
 - (c) Examine the wiring between the Left (Right) LRRA at the E3-1 (E3-2) Shelf, and the Left (Right) WXR Receiver/Transmitter at the Forward Equipment Center as follows (WDM 34-33-11, WDM 34-33-21):

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TILT CODE "-2"

L LRRRA	L (R) WXR R/T
D3667B	D189B
pin G2	pin C1
pin G3	pin C2
D3667B	D673B
pin G2	pin A5
pin G3	pin A6

TILT CODE "+2"

R LRRRA	L (R) WXR R/T
D3669B	D189B
pin G2	pin A5
pin G3	pin A6
D3669B	D673B
pin G2	pin C1
pin G2	pin C2

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the applicable Left (Right) WXR Receiver/Transmitter, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the applicable Left (Right) LRRRA, M1735 (M1736). This is the task: Low Range Radio Altimeter (LRRRA) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
 - 4) Do the Repair Confirmation at the end of this task.
- (e) If you do not find a problem with the wiring, do these steps and then continue.
- 1) Re-install the Left (Right) WXR Receiver/Transmitter, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the applicable Left (Right) LRRRA, M1735 (M1736). This is the task: Low Range Radio Altimeter (LRRRA) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
- (6) Replace the applicable Left (Right) WXR Receiver/Transmitter, M101 (M460). These are the tasks:
- Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do the Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001 on the Left (Right) LRRRA depending on the Tilt Code.
 - (a) If the Tilt Code does not show, then you corrected the problem.

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- (b) If the Tilt Code shows, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

808. WXR RANGE DISAGREE Message Shows on CDS - Captain's - Fault Isolation

A. Description

- (1) The display electronic unit 1 (DEU-1) senses the range differences between the captain's EFIS control panel and the weather radar receiver/transmitter (WXR).

B. Possible Causes

- (1) Captain's EFIS control panel, P7-1.
- (2) Weather radar receiver/transmitter, M101.
- (3) Left (Right) Weather radar receiver/transmitter, M101 (M460).
- (4) Display electronic unit 1, M1808.
- (5) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C01369	DISPLAY CAPT EFIS CONT PANEL
D	5	C01359	DISPLAY DEU 1 PRI

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	13	C00120	WEATHER RADAR RT

D. Related Data

- (1) (SSM 34-41-11).

E. Initial Evaluation

- (1) Make sure the WXR switch on the captain's EFIS control panel is selected.
- (2) Make sure the CONTROL PANEL switch on the instrument switching module is set to NORMAL.
 - (a) If the WXR RANGE DISAGREE message does not show on the captain's display, then there was an intermittent fault.
 - (b) If the WXR RANGE DISAGREE message shows on the captain's display, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) For DEU-1, do this task: CDS BITE Procedure, 31-62 TASK 801.
Look for any of the maintenance messages related to the LRUs that follow:

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- (a) EFIS control panel
- (b) Weather radar
- (c) Display electronic unit
 - 1) If any of the above maintenance messages show, then go to the FIM task for that message.
 - 2) If the WXR RANGE DISAGREE message does not show on the captain's display, then you corrected the fault.
 - 3) If the WXR RANGE DISAGREE message shows on the captain's display, then continue.
- (2) Do this check of the wiring between the weather radar receiver/transmitter and the captain's DEU-1:
 - (a) Remove the weather radar receiver/transmitter, M101. To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the DEU-1, M1808. To move it, do this task: AMM TASK 31-62-21-000-801.
 - (c) Do a wiring check between the weather radar receiver/transmitter connector D189B, and the captain's DEU-1 connector D3973F (WDM 34-41-11).

D3973B		D189B
pin C7	.....	pin B3
pin D7	.....	pin B4
- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the captain's DEU-1, M1808. To install it, do this task: AMM TASK 31-62-21-400-801.
 - 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - a) If the weather radar operational test passes, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
 - 1) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the captain's DEU-1, M1808. To install it, do this task: AMM TASK 31-62-21-400-801.
- (3) Do this check of the wiring between the Left (Right) weather radar receiver/transmitter and the captain's DEU-1:
 - (a) Remove the Left (Right) weather radar receiver/transmitter, M101 (M460). To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the DEU-1, M1808. To move it, do this task: AMM TASK 31-62-21-000-801.
 - (c) Do a wiring check between the Left (Right) weather radar receiver/transmitter connector D189B (D673B), and the captain's DEU-1 connector D3973B (WDM 34-41-11).

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D3973B

(D3973B)

pin C7 (C7)

pin D7 (D7)

D189B (D673B)

pin B3 (B3)

pin B4 (B4)

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the Left (Right) weather radar receiver/transmitter, M101 (M460). To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the captain's DEU-1, M1808. To install it, do this task: AMM TASK 31-62-21-400-801.
 - 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - a) If the weather radar operational test passes, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- 1) Re-install the Left (Right) weather radar receiver/transmitter, M101 (M460). To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the captain's DEU-1, M1808. To install it, do this task: AMM TASK 31-62-21-400-801.
- (4) Replace the weather radar receiver/transmitter. To replace it, These are the tasks:
- Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
- (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
- 1) If the tilt code does not show then you corrected the fault.

———— **END OF TASK** ————

809. WXR RANGE DISAGREE Message Shows on CDS - First Officer's - Fault Isolation

A. Description

- (1) The display electronic unit 2 (DEU-2) senses the range differences between the first officer's EFIS control panel and the weather radar receiver/transmitter (WXR).

B. Possible Causes

- (1) First officer's EFIS control panel, P7-2.
- (2) Weather radar receiver/transmitter, M101.
- (3) Left (Right) Weather radar receiver/transmitter, M101 (M460).
- (4) Display electronic unit 2, M1809.
- (5) Wiring.

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI
D	13	C00120	WEATHER RADAR RT
E	13	C01370	DISPLAY F/O EFIS CONT PANEL

D. Related Data

- (1) (SSM 34-41-11).

E. Initial Evaluation

- (1) Make sure the WXR switch on the first officer's EFIS control panel is selected.
- (2) Make sure the CONTROL PANEL switch on the instrument switching module is set to NORMAL.
 - (a) If the WXR RANGE DISAGREE message does not show on the first officer's display, then there was an intermittent fault.
 - (b) If the WXR RANGE DISAGREE message shows on the first officer's display, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) For DEU-2, do this task: CDS BITE Procedure, 31-62 TASK 801.

Look for any of the maintenance messages related to the LRUs that follow:

 - (a) EFIS control panel
 - (b) Weather radar
 - (c) Display electronic unit
 - 1) If any of the above maintenance messages show, then go to the FIM task for that message.
 - 2) If the WXR RANGE DISAGREE message does not show on the first officer's display, then you corrected the fault.
 - 3) If the WXR RANGE DISAGREE message shows on the first officer's display, then continue.
- (2) Do this check of the wiring between the weather radar receiver/transmitter and the first officer's DEU-2:
 - (a) Remove the weather radar receiver/transmitter, M101. To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the first officer's DEU-2, M1809. To move it, do this task: AMM TASK 31-62-21-000-801.
 - (c) Do a wiring check between the weather radar receiver/transmitter connector D189B, and the first officer's DEU-2 connector D3975F (WDM 34-41-11).

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D3975B

pin C7 pin J3
pin B7 pin J4

D189B

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the first officer's DEU-2, M1809. To install it, do this task: AMM TASK 31-62-21-400-801.
 - 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - a) If the weather radar operational test passes, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
 - 1) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the first officer's DEU-2, M1809. To install it, do this task: AMM TASK 31-62-21-400-801.
- (3) Do this check of the wiring between the Left (Right) weather radar receiver/transmitter and the first officer's DEU-2:
 - (a) Remove the Left (Right) weather radar receiver/transmitter, M101 (M460). To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the first officer's DEU-2, M1809. To move it, do this task: AMM TASK 31-62-21-000-801.
 - (c) Do a wiring check between the Left (Right) weather radar receiver/transmitter connector D189B (D673B), and the first officer's DEU-2 connector D3975B (WDM 34-41-11).

D3975B

(D3975B)

pin C7 (C7) pin J3 (J3)
pin D7 (D7) pin J4 (J4)

D189B (D673B)

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the Left (Right) weather radar receiver/transmitter, M101 (M460). To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the first officer's DEU-2, M1809. To install it, do this task: AMM TASK 31-62-21-400-801.
 - 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - a) If the weather radar operational test passes, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.

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- 1) Re-install the Left (Right) weather radar receiver/transmitter, M101 (M460). To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
- 2) Re-install the first officer's DEU-2, M1809. To install it, do this task: AMM TASK 31-62-21-400-801.
- (4) Replace the weather radar receiver/transmitter. To replace it, These are the tasks:
 - Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
- (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - 1) If the tilt code does not show then you corrected the fault.

END OF TASK

810. MAP/WXR RANGE DISAGREE Message Shows on CDS - Captain's - Fault Isolation

A. Description

- (1) The display electronic unit 1 (DEU-1) senses the range differences from the captain's EFIS control panel, the weather radar receiver/transmitter (WXR) and the flight management computer (FMC).

B. Possible Causes

- (1) Captain's EFIS control panel, P7-1.
- (2) Weather radar receiver/transmitter, M101.
- (3) Left (Right) Weather radar receiver/transmitter, M101 (M460).
- (4) Flight management computer (FMC), M1175 (FMC 1) or M1632 (FMC 2) (if installed).
- (5) Display electronic unit 1, M1808.
- (6) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
D	5	C01359	DISPLAY DEU 1 PRI

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	13	C00120	WEATHER RADAR RT
D	16	C01262	FMCS CMPTR 2

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D. Related Data

- (1) (SSM 34-41-11).

E. Initial Evaluation

- (1) Make sure the WXR switch on the captain's EFIS control panel is selected.
- (2) Make sure the CONTROL PANEL switch on the instrument switching module is set to NORMAL.
- (a) If the MAP/WXR RANGE DISAGREE message does not show on the captain's display, then there was an intermittent fault.
- (b) If the MAP/WXR RANGE DISAGREE message shows on the captain's display, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) For DEU-1, do this task: CDS BITE Procedure, 31-62 TASK 801.
- Look for any of the maintenance messages related to the LRUs that follow:
- (a) EFIS control panel
- (b) Weather radar
- (c) Flight management computer
- (d) Display electronic unit
- 1) If any of the above maintenance messages show, then go to the FIM task for that message.
- 2) If the MAP/WXR RANGE DISAGREE message does not show on the captain's display, then you corrected the fault.
- 3) If the MAP/WXR RANGE DISAGREE message shows on the captain's display, then continue.
- (2) Do this check of the wiring between the weather radar receiver/transmitter and the captain's DEU-1:
- (a) Remove the weather radar receiver/transmitter, M101. To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
- (b) Remove the DEU-1, M1808. To move it, do this task: AMM TASK 31-62-21-000-801.
- (c) Do a wiring check between the weather radar receiver/transmitter connector D189B, and the captain's DEU-1 connector D3973F (WDM 34-41-11).

D3973B	D189B
pin C7	pin B3
pin D7	pin B4

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
- 3) Re-install the captain's DEU-1, M1808. To install it, do this task: AMM TASK 31-62-21-400-801.
- 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
- a) If the weather radar operational test passes, then you corrected the fault.

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- (e) If you do not find a problem with the wiring, then continue.
 - 1) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the captain's DEU-1, M1808. To install it, do this task: AMM TASK 31-62-21-400-801.
- (3) Do this check of the wiring between the Left (Right) weather radar receiver/transmitter and the captain's DEU-1:
 - (a) Remove the Left (Right) weather radar receiver/transmitter, M101 (M460). To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the DEU-1, M1808. To move it, do this task: AMM TASK 31-62-21-000-801.
 - (c) Do a wiring check between the Left (Right) weather radar receiver/transmitter connector D189B (D673B), and the captain's DEU-1 connector D3973B (WDM 34-41-11).

D3973B

(D3973B)

pin C7 (C7)

pin D7 (D7)

D189B (D673B)

pin B3 (B3)

pin B4 (B4)

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the Left (Right) weather radar receiver/transmitter, M101 (M460). To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the captain's DEU-1, M1808. To install it, do this task: AMM TASK 31-62-21-400-801.
 - 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - a) If the weather radar operational test passes, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
 - 1) Re-install the Left (Right) weather radar receiver/transmitter, M101 (M460). To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the captain's DEU-1, M1808. To install it, do this task: AMM TASK 31-62-21-400-801.
- (4) Replace the weather radar receiver/transmitter. To replace it, These are the tasks:
Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801,
Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - 1) If the tilt code does not show then you corrected the fault.

———— **END OF TASK** ————

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811. MAP/WXR RANGE DISAGREE Message Shows on CDS - First Officer's - Fault Isolation

A. Description

- (1) The display electronic unit (DEU-2) senses the range differences from the first officer's EFIS control panel, the weather radar receiver/transmitter (WXR) and the flight management computer (FMC).

B. Possible Causes

- (1) First officer's EFIS control panel, P7-2.
- (2) Weather radar receiver/transmitter, M101.
- (3) Left (Right) Weather radar receiver/transmitter, M101 (M460).
- (4) Flight management computer (FMC), M1175 (FMC 1) or M1632 (FMC 2) (if installed).
- (5) Display electronic unit 2, M1809.
- (6) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C01360	DISPLAY DEU 2 PRI
D	13	C00120	WEATHER RADAR RT
D	16	C01262	FMCS CMPTR 2
E	13	C01370	DISPLAY F/O EFIS CONT PANEL

D. Related Data

- (1) (SSM 34-41-11).

E. Initial Evaluation

- (1) Make sure the WXR switch on the first officer's EFIS control panel is selected.
- (2) Make sure the CONTROL PANEL switch on the instrument switching module is set to NORMAL.
 - (a) If the MAP/WXR RANGE DISAGREE message does not show on the first officer's display, then there was an intermittent fault.
 - (b) If the MAP/WXR RANGE DISAGREE message shows on the first officer's display, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) For DEU-2, do this task: CDS BITE Procedure, 31-62 TASK 801.

Look for any of the maintenance messages related to the LRUs that follow:

 - (a) EFIS control panel

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- (b) Weather radar
- (c) Flight management computer
- (d) Display electronic unit
 - 1) If any of the above maintenance messages show, then go to the FIM task for that message.
 - 2) If the MAP/WXR RANGE DISAGREE message does not show on the first officer's display, then you corrected the fault.
 - 3) If the MAP/WXR RANGE DISAGREE message shows on the first officer's display, then continue.
- (2) Do this check of the wiring between the weather radar receiver/transmitter and the first officer's DEU-2:
 - (a) Remove the weather radar receiver/transmitter, M101. To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the first officer's DEU-2, M1809. To move it, do this task: AMM TASK 31-62-21-000-801.
 - (c) Do a wiring check between the weather radar receiver/transmitter connector D189B, and the first officer's DEU-2 connector D3975F (WDM 34-41-11).

D3975B		D189B
pin C7	.....	pin J3
pin B7	.....	pin J4
- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the first officer's DEU-2, M1809. To install it, do this task: AMM TASK 31-62-21-400-801.
 - 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - a) If the weather radar operational test passes, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
 - 1) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the captain's DEU-2, M1809. To install it, do this task: AMM TASK 31-62-21-400-801.
- (3) Do this check of the wiring between the Left (Right) weather radar receiver/transmitter and the first officer's DEU-2:
 - (a) Remove the Left (Right) weather radar receiver/transmitter, M101 (M460). To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the first officer's DEU-2, M1809. To move it, do this task: AMM TASK 31-62-21-000-801.
 - (c) Do a wiring check between the Left (Right) weather radar receiver/transmitter connector D189B (D673B), and the first officer's DEU-2 connector D3975B (WDM 34-41-11).

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D3975B

(D3975B)

pin C7 (C7)

pin B7 (B7)

D189B (D673B)

pin J3 (J3)

pin J4 (J4)

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the Left (Right) weather radar receiver/transmitter, M101 (M460). To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the first officer's DEU-2, M1809. To install it, do this task: AMM TASK 31-62-21-400-801.
 - 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - a) If the weather radar operational test passes, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
 - 1) Re-install the Left (Right) weather radar receiver/transmitter, M101 (M460). To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the captain's DEU-2, M1809. To install it, do this task: AMM TASK 31-62-21-400-801.
- (4) Replace the weather radar receiver/transmitter. To replace it,

These are the tasks:

Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801,

Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.

 - (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - 1) If the tilt code does not show then you corrected the fault.

————— **END OF TASK** —————

812. WXR DSPY Message Shows on CDS - Captain's - Fault Isolation

A. Description

- (1) The applicable captain's display unit is overheated.

B. Possible Causes

- (1) Applicable captain's display unit (N187, N188, N189).
- (2) Display electronic unit 1, M1808.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C01369	DISPLAY CAPT EFIS CONT PANEL
D	2	C01372	DISPLAY CTR UPR

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CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C01365	DISPLAY CAPT INBD
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP

D. Related Data

- (1) (SSM 34-41-11).

E. Initial Evaluation

- (1) Make sure the WXR switch on the captain's EFIS control panel is selected.
- (2) Make sure the CONTROL PANEL switch on the instrument switching module is set to NORMAL.
 - (a) If the WXR DSPY message does not show on the captain's display, then there was an intermittent fault.
 - (b) If the WXR DSPY message shows on the captain's display, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) For DEU-1, do this task: CDS BITE Procedure, 31-62 TASK 801.

Look for any of the maintenance messages related to the LRUs that follow:

 - (a) Applicable display unit
 - (b) Display electronic unit
 - 1) If any of the above maintenance messages show, then go to the FIM task for that message.
 - 2) If the WXR DSPY message does not show on the captain's display, then you corrected the fault.

————— **END OF TASK** —————

813. WXR DSPY Message Shows on CDS - First Officer's - Fault Isolation

A. Description

- (1) The applicable first officer's display unit is overheated.

B. Possible Causes

- (1) Applicable first officer's display unit (N191, N192, N190).
- (2) Display electronic unit 2, M1809.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C01360	DISPLAY DEU 2 PRI
E	10	C01364	DISPLAY F/O OUTBD
E	11	C01366	DISPLAY F/O INBD
E	12	C01373	DISPLAY CTR LWR

D. Related Data

- (1) (SSM 34-41-11).

E. Initial Evaluation

- (1) Make sure the WXR switch on the first officer's EFIS control panel is selected.
- (2) Make sure the CONTROL PANEL switch on the instrument switching module is set to NORMAL.
 - (a) If the WXR DSPY message does not show on the first officer's display, then there was an intermittent fault.
 - (b) If the WXR DSPY message shows on the first officer's display, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) For DEU-2, do this task: CDS BITE Procedure, 31-62 TASK 801.

Look for any of the maintenance messages related to the LRUs that follow:

 - (a) Applicable display unit
 - (b) Display electronic unit
 - 1) If any of the above maintenance messages show, then go to the FIM task for that message.
 - 2) If the WXR DSPY message does not show on the first officer's display, then you corrected the fault.

————— **END OF TASK** —————

814. Weather Radar System Problem - Fault Isolation

A. Description

- (1) This task is for these WXR System problems:
 - (a) Blank Display
 - (b) Gain Control
 - (c) Tilt Control

B. Possible Causes

- (1) WXR Receiver/Transmitter, M101
- (2) Left (Right) WXR Receiver/Transmitter, M101 (M460)
- (3) WXR Control Panel, P8-52

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

D. Initial Evaluation

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

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

- (2) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
- (a) If the Operational Test is satisfactory, then there was an intermittent fault.
- (b) If the Operational Test is not satisfactory and FAIL Messages show, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) If WXR FAIL shows, then do this task: Weather Radar System BITE Procedure, 34-43 TASK 801.
- (2) If WXR FAIL RT shows, then do this task: Weather Radar Receiver/Transmitter Problem - Fault Isolation, 34-43 TASK 802.
- (3) If WXR FAIL WEAK shows, then do this task: Weather Radar Receiver/Transmitter Problem - Fault Isolation, 34-43 TASK 802.
- (4) If WXR FAIL ANT shows, then do this task: Weather Radar Antenna Problem - Fault Isolation, 34-43 TASK 803.
- (5) If WXR FAIL CONT shows, then do this task: Weather Radar Control Panel Problem - Fault Isolation, 34-43 TASK 804.
- (6) If WXR FAIL ATT shows, then do this task: Weather Radar System, Inertial Reference System Problem - Fault Isolation, 34-43 TASK 806.

————— **END OF TASK** —————

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815. Predictive Windshear System Problem - Fault Isolation

A. Description

- (1) This task is for this fault:
 - (a) PWS FAIL

NOTE: The Predictive Windshear System (PWS) can give incorrect PWS alerts at some airports or runways. These can be because of objects that move in the area. These objects can be traffic, long or tall buildings, or the terrain. These objects can cause doppler shifts in the air that incorrectly show as possible windshear in front of the aircraft.

B. Possible Causes

- (1) Weather Radar Antenna Drive, M1209
- (2) Weather Radar Waveguide Assembly
- (3) Weather Radar Antenna Flat Plate
- (4) Nose Radome Structure
- (5) Weather Radar Receiver/Transmitter, M101
- (6) Left (Right) Weather Radar Receiver/Transmitter, M101 (M460)
- (7) Left (Right) ADIRU, M1749 (M1752)
- (8) Left (Right) LRRR, M1735 (M1736)
- (9) Left (Right) Autothrottle Microswitch Assembly, M1766 (M1767)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

D. Related Data

- (1) SSM 34-41-11
- (2) WDM 34-41-11

E. Initial Evaluation

- (1) Do this task: Weather Radar System BITE Procedure, 34-43 TASK 801.
 - (a) If the weather radar operational test passes, then there was an intermittent fault.
 - (b) If the weather radar operational test does not pass, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check of the Weather Radar Receiver/Transmitter Blower Assembly.

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- (a) To get access to the Weather Radar R/T mount, open this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

- (b) Push the blower assembly test switch on the R/T mount.

- (c) If the fan comes on, then do these steps:

- 1) Remove the Weather Radar Receiver/Transmitter. This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
- 2) Look for any objects or dust that can stop the Weather Radar Receiver/Transmitter air flow.

- a) Remove the unwanted objects that stop the air flow using this procedure:

- <1> Remove the Weather Radar Mount Blower Assembly. This is the task: Weather Radar R/T Mount Blower Assembly Removal, AMM TASK 34-43-51-000-801.
- <2> Make sure the mount blower electrical connectors are covered to protect them from Foreign Object Damage (FOD).
- <3> Use a shop vacuum to remove dirt and dust from the blower assembly.
- <4> Use a brush to loosen dirt not removed by the vacuum. Low pressure compressed air may also aid in removal of contaminants from the blower assembly.
- <5> Repeat the vacuuming of the blower assembly.
- <6> Re-install the Weather Radar Mount Blower Assembly. This is the task: Weather Radar R/T Mount Blower Assembly Installation, AMM TASK 34-43-51-400-801.

- 3) Re-install the Weather Radar Receiver/Transmitter. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.

- (d) If the fan does not come one, then replace the Weather Radar Receiver/Transmitter Mount, M1209. These are the tasks:

- Weather Radar Receiver/Transmitter Mount Removal, AMM TASK 34-43-31-000-801
- Weather Radar Receiver/Transmitter Mount Installation, AMM TASK 34-43-31-400-801

- (e) Do the Repair Confirmation at the end of this task.

- (2) Inspect the Weather Radar Waveguide Assembly for the following conditions:

- dents
- cracks
- damaged areas
- water
- dirt
- dust
- FOD

NOTE: Any dust coatings or damage could impede the Weather Radar's Radio Frequency (RF) transmission.

- (a) If you find any of the above, do these steps:

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- 1) Clean or replace damaged or dirty sections (flexible sections must be replaced). These are the tasks:
 - WXR Waveguide Removal, AMM TASK 34-43-21-000-801
 - WXR Waveguide Installation, AMM TASK 34-43-21-400-801
- 2) Do the Repair Confirmation at the end of this task.
- (b) If the Weather Radar Waveguide Assembly inspection is satisfactory, then continue.
- (3) Inspect the Weather Radar Antenna Flat Plate. This is the task: Weather Radar Antenna Flat Plate Inspection, AMM TASK 34-43-11-200-801.
 - (a) If you find damage or dirt, then do these steps:
 - 1) Clean or replace the Weather Radar Antenna Flat Plate. These are the tasks:
 - Weather Radar Antenna Flat Plate Removal, AMM TASK 34-43-11-000-801
 - Weather Radar Antenna Flat Plate Installation, AMM TASK 34-43-11-400-801
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find any damage or dirt, then continue.
- (4) Inspect the Nose Radome Structure. This is the task: Nose Radome - Inspection, AMM TASK 53-52-00-200-801.

NOTE: Any damage, dirt or excessive sealant/paint on the nose radome structure can impede the Weather Radar's RF.

 - (a) If you find a problem during an inspection, then do these steps:
 - 1) Clean, paint or replace the Nose Radome. These are the tasks:
 - Nose Radome - Cleaning/Painting, AMM TASK 53-52-00-370-801
 - Nose Radome Removal, AMM TASK 53-52-00-000-801
 - Nose Radome Installation, AMM TASK 53-52-00-400-801
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If Nose Radome Structure inspection is satisfactory, then continue.
- (5) Replace the Weather Radar Antenna Drive, M1209. These are the tasks:
 - Weather Radar Antenna Flat Plate Removal, AMM TASK 34-43-11-000-801
 - Weather Radar Antenna Drive Unit Removal, AMM TASK 34-43-11-000-802
 - Weather Radar Antenna Drive Unit Installation, AMM TASK 34-43-11-400-802
 - Weather Radar Antenna Flat Plate Installation, AMM TASK 34-43-11-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (6) Replace the Weather Radar Receiver/Transmitter, M101. These are the tasks:
 - Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (7) Replace the Left (Right) Weather Radar Receiver/Transmitter, M101 (M460). These are the tasks:
 - Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
 - (a) Do the Repair Confirmation at the end of this task.

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- (8) Replace the applicable Left (Right) ADIRU, M1749 (M1752). These are the tasks:
 - Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (9) Replace the applicable Left (Right) LRRA, M1735 (M1736). These are the tasks:
 - Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801
 - Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (10) Clean the applicable Left (Right) Autothrottle Microswitch, M1766 (M1767). This is the task:
 - Switch Test and Cleaning, AMM TASK 76-11-07-820-802-F00
 - (a) Do the repair confirmation at the end of this task.
- (11) Replace the applicable Left (Right) Autothrottle Microswitch, M1766 (M1767). These are the tasks:
 - Autothrottle Switchpack Switch Removal, AMM TASK 76-11-07-020-801-F00
 - Autothrottle Switchpack Switch Installation, AMM TASK 76-11-07-400-801-F00
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do the BITE of the WXR system for any related maintenance messages. This is the task: Weather Radar System BITE Procedure, 34-43 TASK 801.
 - (a) If you do not find any related messages, then you corrected the problem.
 - (b) If the maintenance message continues to show, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

816. No Range Data From EFIS Control Panel - Fault Isolation

A. Description

- (1) This task is for these Observed Faults:
 - (a) Tilt Code of "-4" EFIS - Left
 - (b) Tilt Code of "+4" EFIS - Right
- (2) The WXR Receiver/Transmitter detects no Range Data from the EFIS Control Panel.

B. Possible Causes

- (1) CAPT (F/O) EFIS Control Panel, P7-1 (P7-2)
- (2) CAPT (F/O) Display Electronic Unit (DEU)-1 (DEU-2)
- (3) Wiring
- (4) WXR Receiver/Transmitter, M101
- (5) Left (Right) Weather Radar Receiver/Transmitter, M101 (M460)

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C01369	DISPLAY CAPT EFIS CONT PANEL
D	5	C01359	DISPLAY DEU 1 PRI

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	11	C01360	DISPLAY DEU 2 PRI
D	13	C00120	WEATHER RADAR RT

D. Related Data

- (1) WDM 34-41-11
- (2) WDM 34-41-21
- (3) SSM 34-41-11
- (4) SSM 34-41-21

E. Initial Evaluation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Operational Test passes, and no maintenance messages show, then there was an intermittent fault.
 - (b) If the Operational Test fails, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do the CDS BITE Procedure, 31-62 TASK 801 to do a check of the DEUs.
 - (a) If the CDS BITE Test shows faults for the Line Replaceable Unit (LRU)s that follow, then refer to the table at the end of the CDU BITE Task to find the applicable FIM Tasks for the CDS maintenance messages that show:
 - 1) EFIS Control Panel
 - 2) WXR Receiver/Transmitter
 - 3) DEU
 - a) If the Tilt Code does not show on the display, then you corrected the problem.
 - b) If the Tilt Code shows, then continue.
 - (b) If the CDS BITE Test does not show faults for the above LRUs, then continue.
- (2) Do this check of the wiring between the applicable DEU and the WXR Receiver/Transmitter:
 - (a) Remove the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the DEU-1 (2), M1808 (M1809). This is the task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

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- (c) Examine the wiring between the WXR Receiver/Transmitter in the Forward Equipment Center, and DEU-1 (2), M1808 (M1809) at the E3-1 Shelf as follows (WDM 34-41-11):

TILT CODE "-4" (DEU-1)

WXR R/T	DEU-1
D189B	D3973B
pin B3	pin C7
pin B4	pin D7

TILT CODE "+4" (DEU-2)

WXR R/T	DEU-2
D189B	D3975B
pin J3	pin C7
pin J4	pin D7

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the DEU-1 (2), M1808 (M1809). This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) Do the Repair Confirmation at the end of this task.
- (e) If you do not find a problem with the wiring, do these steps and then continue:
- 1) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the DEU-1 (2), M1808 (M1809). This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- (3) Replace the Weather Radar Receiver/Transmitter, M101. These are the tasks:
- Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (4) Do the CDS BITE Procedure, 31-62 TASK 801 to do a check of the DEUs.
- (a) If the CDS BITE Test shows faults for the LRUs that follow, then refer to the table at the end of the CDU BITE Task to find the applicable FIM Tasks for the CDS maintenance messages that show:
- 1) EFIS Control Panel
 - 2) WXR Receiver/Transmitter
 - 3) DEU
 - a) If the Tilt Code does not show on the display, then you corrected the problem.
 - b) If the Tilt Code shows, then continue.
- (b) If the CDS BITE Test does not show faults for the above LRUs, then continue.
- (5) Do this check of the wiring between the applicable DEU and the Left (Right) WXR Receiver/Transmitter:

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- (a) Remove the Left (Right) WXR Receiver/Transmitter, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
- (b) Remove the DEU-1 (2), M1808 (M1809). This is the task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - 1) Examine the wiring between the Left WXR Receiver/Transmitter, M101 in the Forward Equipment Center, and DEU-1 (2), M1808 (M1809) at the E3-1 Shelf as follows (WDM 34-41-11):

TILT CODE "-4"

L WXR R/T	DEU-1
D189B	D3973B
pin B3	pin C7
pin B4	pin D7

TILT CODE "-4"

R WXR R/T	DEU-1
D673B	D3973B
pin B3	pin C7
pin B4	pin D7

- 2) Examine the wiring between the Right WXR Receiver/Transmitter, in the Forward Equipment Center, and DEU-1 (2), M1808 (M1809) at the E3-1 Shelf as follows (WDM 34-41-21):

TILT CODE "+4"

L WXR R/T	DEU-2
D189B	D3975B
pin J3	pin C7
pin J4	pin D7

TILT CODE "+4"

R WXR R/T	DEU-2
D673B	D3973B
pin J3	pin C7
pin J4	pin D7

- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the DEU-1 (2), M1808 (M1809). This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) Do the Repair Confirmation at the end of this task.
- (d) If you do not find a problem with the wiring, do these steps and then continue:
 - 1) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.

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- 2) Re-install the DEU-1 (2), M1808 (M1809). This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- (6) Replace the Left (Right) Weather Radar Receiver/Transmitter, M101 (M460). These are the tasks:
 - Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Operational Test passes, and no maintenance messages show, then you corrected the problem.
 - (b) If the Operational Test fails, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

817. No Thrust Input from the Autothrottle - Fault Isolation

A. Description

- (1) This task is for this Observed Fault:
 - (a) Left (Right) Autothrottle Tilt Code of “-5”
- (2) The WXR Receiver/Transmitter detects No Thrust Data from the Left (Right) Autothrottle Microswitches.

B. Possible Causes

- (1) Wiring
- (2) Left (Right) Autothrottle Microswitch Assembly, M1766 (M1767)
- (3) WXR Receiver/Transmitter, M101
- (4) Left (Right) WXR Receiver/Transmitter, M101 (M460)

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1

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D. Related Data

- (1) WDM 34-41-11
- (2) WDM 34-41-21
- (3) SSM 34-41-11
- (4) SSM 34-41-21

E. Fault Isolation Procedure

- (1) Do this check of the wiring between the WXR Receiver/Transmitter, M101 and the Left (Right) Autothrottle Microswitch Assembly, M1766 (M1767).
 - (a) Remove the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Disconnect the Left and Right Autothrottle Microswitch (M1766 and M1767). This is the task: Autothrottle Switchpack Switch Removal, AMM TASK 76-11-07-020-801-F00.
 - (c) Examine the wiring between the WXR Receiver/Transmitter in the FWD Equipment Center and the Left (and Right Autothrottle Microswitches (M1766 and M1767) at Switch Pack #1 and #2 as follows (WDM 34-41-11):

LEFT AUTO THROTTLE

WXR R/T	L A/T
D189B	MICROSWITCH
D189B	D11128
pin B9	pin 18

RIGHT AUTO THROTTLE

WXR R/T	R A/T
D189B	MICROSWITCH
D189B	D11132
pin B10	pin 18

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the Left and Right Autothrottle Microswitch (M1766 and M1767). This is the task: Autothrottle Switchpack Switch Installation, AMM TASK 76-11-07-400-801-F00.
 - 4) Do the Repair Confirmation at the end of this task.
- (e) If you do not find a problem with the wiring, do these steps and then continue.
 - 1) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the Left and Right Autothrottle Microswitch (M1766 and M1767). This is the task: Autothrottle Switchpack Switch Installation, AMM TASK 76-11-07-400-801-F00.

- (2) Clean the Autothrottle Microswitch, M1766 (M1767). This is the task:

- Switch Test and Cleaning, AMM TASK 76-11-07-820-802-F00

- (a) Do the Repair Confirmation at the end of this task.

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- (3) Replace the Autothrottle Microswitch, M1766 (M1767). These are the tasks:
- Autothrottle Switchpack Switch Removal, AMM TASK 76-11-07-020-801-F00
 - Autothrottle Switchpack Switch Installation, AMM TASK 76-11-07-400-801-F00
- (a) Do the Repair Confirmation at the end of this task.
- (4) Replace the WXR Receiver/Transmitter, M101. These are the tasks:
- Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (5) Do this check of the wiring between the Left (Right) WXR Receiver/Transmitter, M101 (M460) and the Left (Right) Autothrottle Microswitch Assembly, M1766 (M1767).
- (a) Remove the Left (Right) WXR Receiver/Transmitter, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
- (b) Remove the Left and Right Autothrottle Microswitch (M1766 and M1767). This is the task: Autothrottle Switchpack Switch Removal, AMM TASK 76-11-07-020-801-F00.
- (c) Examine the wiring between the Left (Right) WXR Receiver/Transmitter in the FWD Equipment Center and the Left and Right Autothrottle Microswitches (M1766 and M1767) at Switch Pack #1 and #2 as follows (WDM 34-41-11):

LEFT AUTO THROTTLE

L WXR R/T	L A/T
D189B	MICROSWITCH
D189B	D11128
pin B9	pin 18

LEFT AUTO THROTTLE

R WXR R/T	L A/T
D673B	MICROSWITCH
D673B	D11128
pin B9	pin 18

RIGHT AUTO THROTTLE

L WXR R/T	R A/T
D189B	MICROSWITCH
D189B	D11132
pin B10	pin 18

RIGHT AUTO THROTTLE

R WXR R/T	R A/T
D673B	MICROSWITCH
D673B	D11132
pin B10	pin 18

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.

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- 3) Re-install the Left and Right Autothrottle Microswitch (M1766 and M1767). This is the task: Autothrottle Switchpack Switch Installation, AMM TASK 76-11-07-400-801-F00.
- 4) Do the Repair Confirmation at the end of this task.
- (e) If you do not find a problem with the wiring, do these steps and then continue.
 - 1) Re-install the WXR Receiver/Transmitter, M101. This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the Left and Right Autothrottle Microswitch (M1766 and M1767). This is the task: Autothrottle Switchpack Switch Installation, AMM TASK 76-11-07-400-801-F00.
- (6) Clean the Autothrottle Microswitch M1766 (M1767). This is the task:
 - Switch Test and Cleaning, AMM TASK 76-11-07-820-802-F00.
 - (a) Do the repair confirmation at the end of the task.
- (7) Replace the Autothrottle Microswitch, M1766 (M1767). These are the tasks:
 - Autothrottle Switchpack Switch Removal, AMM TASK 76-11-07-020-801-F00
 - Autothrottle Switchpack Switch Installation, AMM TASK 76-11-07-400-801-F00
 - (a) Do the Repair Confirmation at the end of this task.
- (8) Replace the Left (Right) WXR Receiver/Transmitter, M101 (M460). These are the tasks:
 - Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
 - (a) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do the Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Tilt Code does not show, then you corrected the problem.
 - (b) If the Tilt Code shows, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

818. Total ADIRU Failure - Fault Isolation

A. Description

- (1) This task is for this Observed Fault:
 - (a) Tilt Code of "-6" ADIRU
- (2) The WXR Receiver/Transmitter detects no Air Data from the ADIRUs.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)
- (2) DEU 1 (2), M1808 (M1809)
- (3) WXR Receiver/Transmitter, M101
- (4) Left (Right) WXR Receiver/Transmitter, M101 (M460)

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C01359	DISPLAY DEU 1 PRI

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI
D	13	C00120	WEATHER RADAR RT

D. Related Data

- (1) WDM 34-41-11
- (2) WDM 34-41-21
- (3) SSM 34-41-11
- (4) SSM 34-41-21

E. Initial Evaluation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Tilt Code does not show, then there was an intermittent fault.
 - (b) If the Tilt Code shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the applicable Left (Right) ADIRU, M1749 (M1752). These are the tasks:
 - Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801
 - Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (2) Replace the WXR Receiver/Transmitter, M101. These are the tasks:
 - Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (3) Replace the applicable Left (Right) ADIRU, M1749 (M1752). These are the tasks:
 - Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801

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- Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (4) Replace the applicable Left (Right) WXR Receiver/Transmitter, M101 (M460). These are the tasks:
 - Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801
 - Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801
- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Tilt Code does not show, then you corrected the problem.
 - (b) If the Tilt Code still shows, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

819. No Input from the Air/Ground Relay - Fault Isolation

A. Description

- (1) This task is for this weather radar system observed fault:
 - (a) Tilt Code of “-7” Air/Ground.
- (2) No data is detected from the air/ground relay by the weather radar receiver/transmitter.

B. Possible Causes

- (1) Air/ground relay, R589.
- (2) Wiring.
- (3) Weather radar receiver/transmitter, M101.
- (4) Left (Right) Weather radar receiver/transmitter, M101 (M460).

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN

D. Related Data

- (1) SSM 34-41-11
- (2) WDM 34-41-11.

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E. Initial Evaluation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the tilt code does not show then there was an intermittent fault.
 - (b) If the tilt code shows then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do the Fault Isolation steps for Air/Ground Relay fault.
 - (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - 1) If the tilt code does not show then you corrected the fault.
 - 2) If the tilt code shows then continue.
- (2) Do this check of the wiring between the weather radar receiver/transmitter and the air/ground relay:
 - (a) Remove the weather radar receiver/transmitter, M101. To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the air/ground relay, R589.
 - (c) Clean and re-secure all connections (excitation and output circuitry of air/ground relay, R589).
 - (d) Do a wiring check between these pins on connector D189B of the weather radar receiver/transmitter, in the forward equipment center, and connector D11012 of the air/ground relay (WDM 34-41-11).

D189B	D11012
pin K10	pin C3

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the air/ground relay, R589.
 - 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - a) If the weather radar operational test passes, then you corrected the fault.
 - (f) If you do not find a problem with the wiring, then continue.
 - 1) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the air/ground relay, R589.
- (3) Do this check of the wiring between the Left (Right) weather radar receiver/transmitter and the air/ground relay:
 - (a) Remove the Left (Right) weather radar receiver/transmitter, M101 (M460). To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the air/ground relay, R589.

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- (c) Do a wiring check between these pins on connector D189B (D673B) of the Left (Right) weather radar receiver/transmitter, in the forward equipment center, and connector D11012 of the air/ground relay (WDM 34-41-11), .

D189B (D673B)	D11012
	(D11012)
pin K10 (K10)	pin C3 (C3)

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the Left (Right) weather radar receiver/transmitter, M101 (M460). To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the air/ground relay, R589.
 - 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - a) If the weather radar operational test passes, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- 1) Re-install the Left (Right) weather radar receiver/transmitter, M101 (M460). To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 2) Re-install the air/ground relay, R589.
- (4) Replace the weather radar receiver/transmitter, M101.
- These are the tasks:
- Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801,
Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
- (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
- 1) If the tilt code does not show then you corrected the fault.
- (5) Replace the Left (Right) weather radar receiver/transmitter, M101 (M460).
- These are the tasks:
- Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801,
Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
- (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
- 1) If the tilt code does not show then you corrected the fault.

———— **END OF TASK** ————

820. No Aural Warnings (PWS) - Fault Isolation

A. Description

- (1) No Aural Warnings are detected over the flight deck speakers during PWS Warnings or Cautions.

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B. Possible Causes

- (1) Remote Electronics Unit (REU), M1353.
- (2) Autothrottle microswitch assembly, M1766 (left) or M1767 (right).
- (3) Weather radar receiver/transmitter, M101.
- (4) Left (Right) Weather radar receiver/transmitter, M101 (M460).
- (5) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

D. Related Data

- (1) SSM 34-41-11.

E. Initial Evaluation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the tilt code does not show then there was an intermittent fault.
 - (b) If the tilt code shows then do the Fault Isolation Procedure below.
- (2) To do a check of the DEU, M1808 (M1809), do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If the Common Display System (CDS) BITE test shows any faults for the LRU that follow, then go to the fault isolation task for the applicable CDS maintenance message to correct the fault:
 - 1) Weather radar
 - 2) Display electronic unit.
 - (b) If the CDS BITE test does not show, any faults for the above LRU, then continue.

F. Fault Isolation Procedure

- (1) Replace the Remote Electronic Unit, M1353.

These are the tasks:

Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801,

Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.

 - (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - 1) If the aural warnings are heard, then you corrected the fault.
 - 2) If the aural warnings are not heard, then continue.
- (2) Clean the autothrottle microswitch, M1766 (M1767). This is the task:
 - Switch Test and Cleaning, AMM TASK 76-11-07-820-802-F00

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- (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
- 1) If the aural warnings are heard, then you corrected the fault.
 - 2) If the aural warnings are not heard, then continue.
- (3) Replace the autothrottle microswitch, M1766 (M1767). These are the tasks:
- Autothrottle Switchpack Switch Installation, AMM TASK 76-11-07-400-801-F00
 - Autothrottle Switchpack Switch Removal, AMM TASK 76-11-07-020-801-F00.
- (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
- 1) If the aural warnings are heard, then you corrected the fault.
 - 2) If the aural warnings are not heard, then continue.
- (4) Replace the weather radar receiver/transmitter, M101.
- These are the tasks:
- Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801,
Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
- (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
- 1) If the aural warnings are heard, then you corrected the fault.
 - 2) If the aural warnings are not heard, then continue.
- (5) Replace the Left (Right) weather radar receiver/transmitter, M101 (M460).
- These are the tasks:
- Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801,
Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
- (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
- 1) If the aural warnings are heard, then you corrected the fault.
 - 2) If the aural warnings are not heard, then continue.
- (6) Do this check of the wiring between the weather radar receiver/transmitter and the remote electronic unit:
- (a) Remove the weather radar receiver/transmitter, M101. To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the Remote Electronic Unit, M1353. To remove it, do this task: Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
 - (c) Do a wiring check between these pins on connector D189B of the weather radar receiver/transmitter, in the forward equipment center, and connector D2501A of the Remote Electronic Unit WDM 34-41-11).
- | | |
|------------------|---------------|
| D189B | D2501A |
| pin K8 | pin D11 |
| pin K9 | pin J8 |
- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.

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- 2) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
- 3) Re-install the Remote Electronic Unit, M1353. To install it, do this task: Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
- 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.

a) If the aural warnings are heard, then you corrected the fault.

- I (7) Do this check of the wiring between the Left (Right) weather radar receiver/transmitter and the remote electronic unit::

- (a) Remove the Left (Right) weather radar receiver/transmitter, M101 (M460). To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
- (b) Remove the Remote Electronic Unit, M1353. To remove it, do this task: Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
- (c) Do a wiring check between these pins on connector D189B (B673B) of the Left (Right) weather radar receiver/transmitter, in the forward equipment center, and connector D2501A of the Remote Electronic Unit WDM 34-41-11), .

D189B (D673B)

pin K8 (K8) pin D11
pin K9 (K9) pin J8

D2501A

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the Left (Right) weather radar receiver/transmitter, M101 (M460). To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
- 3) Re-install the Remote Electronic Unit, M1353. To install it, do this task: Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
- 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.

a) If the aural warnings are heard, then you corrected the fault.

————— **END OF TASK** —————

821. No Windshear Inhibit from EGPWS - Fault Isolation

A. Description

- (1) This task is for this fault:
 - (a) Tilt Code of “-8” Left (Right) EFIS is displayed.
- (2) No Windshear Inhibit is detected from the Enhanced Ground Proximity System by the Weather Radar Receiver/Transmitter.

B. Possible Causes

- (1) Enhanced Ground Proximity Warning Computer, M652.
- (2) Weather radar receiver/transmitter, M101.
- (3) Left (right) Weather radar receiver/transmitter, M101 (M460).
- (4) Wiring.

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00629	GND PROX WARN

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

D. Related Data

- (1) SSM 34-41-11
(2) WDM 34-49-11.

E. Initial Evaluation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
(a) If the tilt code does not show then there was an intermittent fault.
(b) If the tilt code shows then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the Weather Radar Receiver/Transmitter, M101.
These are the tasks:
Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801,
Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
(a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
1) If the tilt code does not show then you corrected the fault.
2) If the tilt code shows, then continue.
(2) Replace the Left (Right) Weather Radar Receiver/Transmitter, M101 (M460).
These are the tasks:
Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801,
Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
(a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
1) If the tilt code does not show then you corrected the fault.
2) If the tilt code shows, then continue.
(3) Replace the Enhanced Ground Proximity Warning Computer, M652.
These are the tasks:
Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,

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Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

- (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - 1) If the tilt code does not show then you corrected the fault.
 - 2) If the tilt code shows, then continue.
 - (4) Do this check of the wiring between the weather radar receiver/transmitter and the ground proximity warning module:
 - (a) Remove the Weather Radar receiver/transmitter, M101. To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the Ground Proximity Warning Module, P3-7. To remove it, do this task: Ground Proximity Warning Module Removal, AMM TASK 34-46-02-000-801.
 - (c) Do a wiring check between these pins on connector D189B of the weather radar receiver/transmitter, in the forward equipment center, and connector D2501A of the Ground Proximity Warning Module (WDM 34-49-11).
- | | |
|------------------|---------------|
| D189B | D1153A |
| pin F1 | pin B12 |
- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the Ground Proximity Warning Module P3-7. To install it, do this task: Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.
 - 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - a) If the weather radar operational test passes, then you corrected the fault.
 - (5) Do this check of the wiring between the Left (Right) weather radar receiver/transmitter and the ground proximity warning module:
 - (a) Remove the Left (Right) Weather Radar receiver/transmitter, M101 (M460). To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the Ground Proximity Warning Module, P3-7. To remove it, do this task: Ground Proximity Warning Module Removal, AMM TASK 34-46-02-000-801.
 - (c) Do a wiring check between these pins on connector D189B (D373B) of the Left (Right) weather radar receiver/transmitter, in the forward equipment center, and connector D1153B of the Ground Proximity Warning Module (WDM 34-49-11).

D189B (D673B)	D1153B
pin F1 (F1)	pin B12

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the Left (Right) weather radar receiver/transmitter, M101 (M460). To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.

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- 3) Re-install the Ground Proximity Warning Module P3-7. To install it, do this task:
Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.
- 4) Do this task: Weather Radar (WXR) System - Operational Test, AMM
TASK 34-43-00-710-802-001.
 - a) If the weather radar operational test passes, then you corrected the fault.

———— **END OF TASK** ————

822. WXR STAB shows on the CAPT (F/O) DEU - Fault Isolation

A. Description

- (1) This task is for this fault:
 - (a) WXR STAB
- (2) The WXR STAB message indicates that the WXR Processor is not receiving pitch, roll, attitude data correctly, therefore the antenna is not positioned correctly to provide weather data display information.
 - (a) The WXR BITE procedure checks for active and/or flight history faults related to this fault.

B. Possible Causes

- (1) WXR Processor
- (2) WXR Control Panel
- (3) Antenna Drive Unit
- (4) ADIRU
- (5) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

D. Initial Evaluation

- (1) Do this task: Weather Radar System BITE Procedure, 34-43 TASK 801.
 - (a) Refer to the table at the end of the BITE Task to find the applicable FIM Tasks for the maintenance messages that show.
 - (b) If BITE test does not show maintenance message, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) Replace the WXR Control Panel, P8-52. These are the tasks:
 - Weather Radar Control Panel Removal, AMM TASK 34-43-91-000-801
 - Weather Radar Control Panel Installation, AMM TASK 34-43-91-400-801
 - (a) Do the Repair Confirmation at the end of this task.

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F. Repair Confirmation

- (1) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - (a) If the Operational Test passes, and no maintenance messages show, then you corrected the problem.

———— **END OF TASK** ————

824. Both Left and Right Weather Radar Systems Failure During Flight- Fault Isolation

A. Description

- (1) This task is for this WXR System Observed Fault:
 - Both the Left and Right WXR has failed during flight.

B. Possible Causes

- (1) Weather Radar Antenna Drive Unit, M1209
- (2) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

D. Related Data

- (1) WDM 34-41-11
- (2) WDM 34-41-21
- (3) SSM 34-41-11
- (4) SSM 34-41-21

E. Initial Evaluation

- (1) This observed fault can only occur during flight. When the airplane is on the ground, it is not possible to simulate the conditions which caused this fault.
 - (a) Do the Fault Isolation procedure below.

F. Fault Isolation Procedure

- (1) Do the Weather Radar System BITE Procedure. This is the task: Weather Radar System BITE Procedure, 34-43 TASK 801.
 - (a) If WXR FAIL shows on the Captain's or First Officer's DU, then refer to the Maintenance Message Index to find the applicable FIM Task and troubleshoot the problem.
 - (b) If no Maintenance Messages shows, then continue.
- (2) Replace the WXR Antenna Drive, M1209. These are the tasks:
 - Weather Radar Antenna Flat Plate Removal, AMM TASK 34-43-11-000-801
 - Weather Radar Antenna Drive Unit Removal, AMM TASK 34-43-11-000-802

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- Weather Radar Antenna Drive Unit Installation, AMM TASK 34-43-11-400-802
 - Weather Radar Antenna Flat Plate Installation, AMM TASK 34-43-11-400-801
- (a) If the observed fault symptom does not show on the next flights, then you corrected the fault.
- (3) Do this check of the wiring between the Left WXR R/T and the Right WXR R/T.
- (a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01678	WEATHER RADAR RT RIGHT

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

- (b) Remove the Left (Right) Weather Radar R/T, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
- (c) Disconnect the connector D189B at the Left WXR R/T, M101.
- (d) Disconnect the connector D673B at the Right WXR R/T, M460.
- (e) Examine the wiring as follows (WDM 34-41-11, WDM 34-41-21):

Left WXR R/T	Right WXR R/T
D14316A	D14320
pin A7	pin A8
pin A8	pin A7

- (f) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-connect the connector D189B at the Left WXR R/T, M101.
 - 3) Re-connect the connector D673B at the Right WXR R/T, M460.
 - 4) Re-install the Left (Right) Weather Radar R/T, M101 (M460). This is the task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 5) If the observed fault symptom does not show on the next flights, then you corrected the fault

———— **END OF TASK** ————

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801. Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure

A. General

- (1) You do the TCAS BITE test from the TCAS computer front panel. The Traffic Alert and Collision Avoidance System (TCAS) BITE Test is a real-time check for faults in the TCAS system. The BITE Test checks TCAS components and the inputs of the systems that interface with TCAS.
- (2) If the TCAS BITE test detects a fault, it will show a fault light, which is referred to as a maintenance message, on the front panel of the TCAS computer. These are the fault lights:

- (a) TCAS FAIL
- (b) TOP ANT
- (c) BOT ANT
- (d) HDG

NOTE: The HDG fault light is not used.

- (e) RA LOG

NOTE: The RA LOG fault light is not used.

- (f) TA DISP

NOTE: The TA DISP fault light is not used.

- (g) RA DISP
- (h) RAD ALT
- (i) XPDR BUS
- (j) ATT

NOTE: The ATT fault light is not used.

B. BITE Procedure

(Figure 201)

- (1) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, AMM TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, AMM TASK 34-21-00-820-801.

NOTE: The ADIRU must be aligned before the TCAS test is initiated.

- (2) Set the transponder select switch on the ATC control panel to 1 or L.
- (3) Do the BITE procedure for the TCAS computer.
 - (a) Push the test switch on the front panel of the TCAS computer.
 - (b) Make sure all of the lights on the front panel of the TCAS computer come on for approximately 1 second, then go off.
 - 1) If the TCAS PASS light stays on, then the BITE test passed.
 - 2) If a maintenance message other than TCAS PASS shows, then refer to the table at the end of this task to find the fault isolation procedure for the applicable maintenance message.
- (4) Set the transponder select switch on the ATC control panel to 2 or R and do the BITE test for the TCAS computer again.

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
TCAS COMPUTER	BOT ANT	34-45 TASK 804
TCAS COMPUTER	RA DISP	34-45 TASK 808

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LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
TCAS COMPUTER	RAD ALT	34-45 TASK 807
TCAS COMPUTER	TCAS FAIL	34-45 TASK 802
TCAS COMPUTER	TOP ANT	34-45 TASK 803
TCAS COMPUTER	X PNDR	34-45 TASK 811
TCAS COMPUTER	XPDR BUS	34-45 TASK 811

———— **END OF TASK** ————

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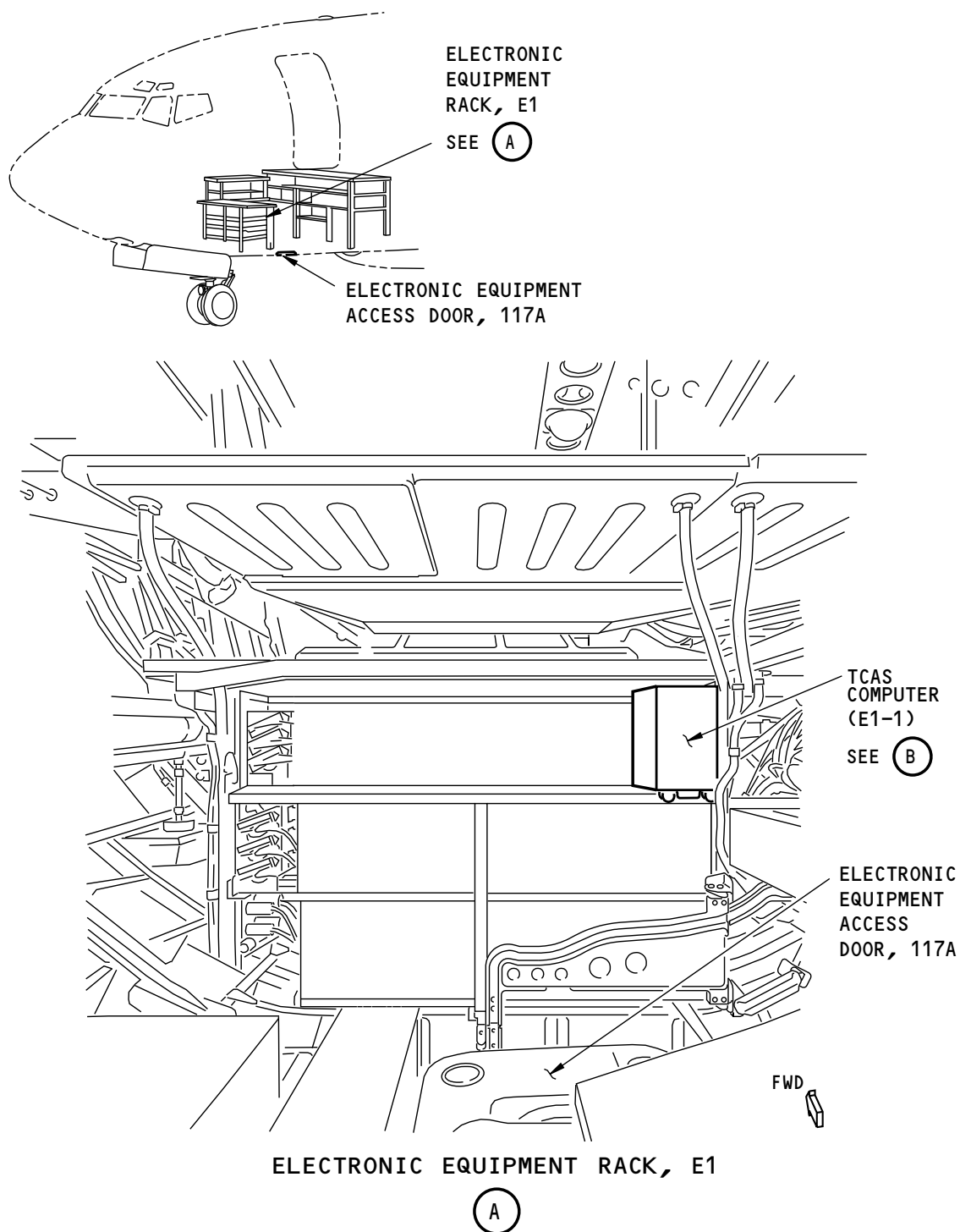
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G44457 S0006744207_V1

TCAS Computer
Figure 201/34-45-00-990-804 (Sheet 1 of 2)

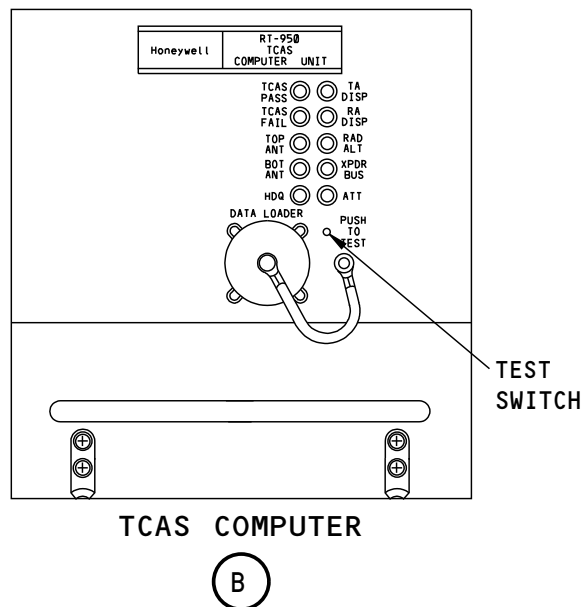
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H16157 S0006744210_V1

TCAS Computer
Figure 201/34-45-00-990-804 (Sheet 2 of 2)

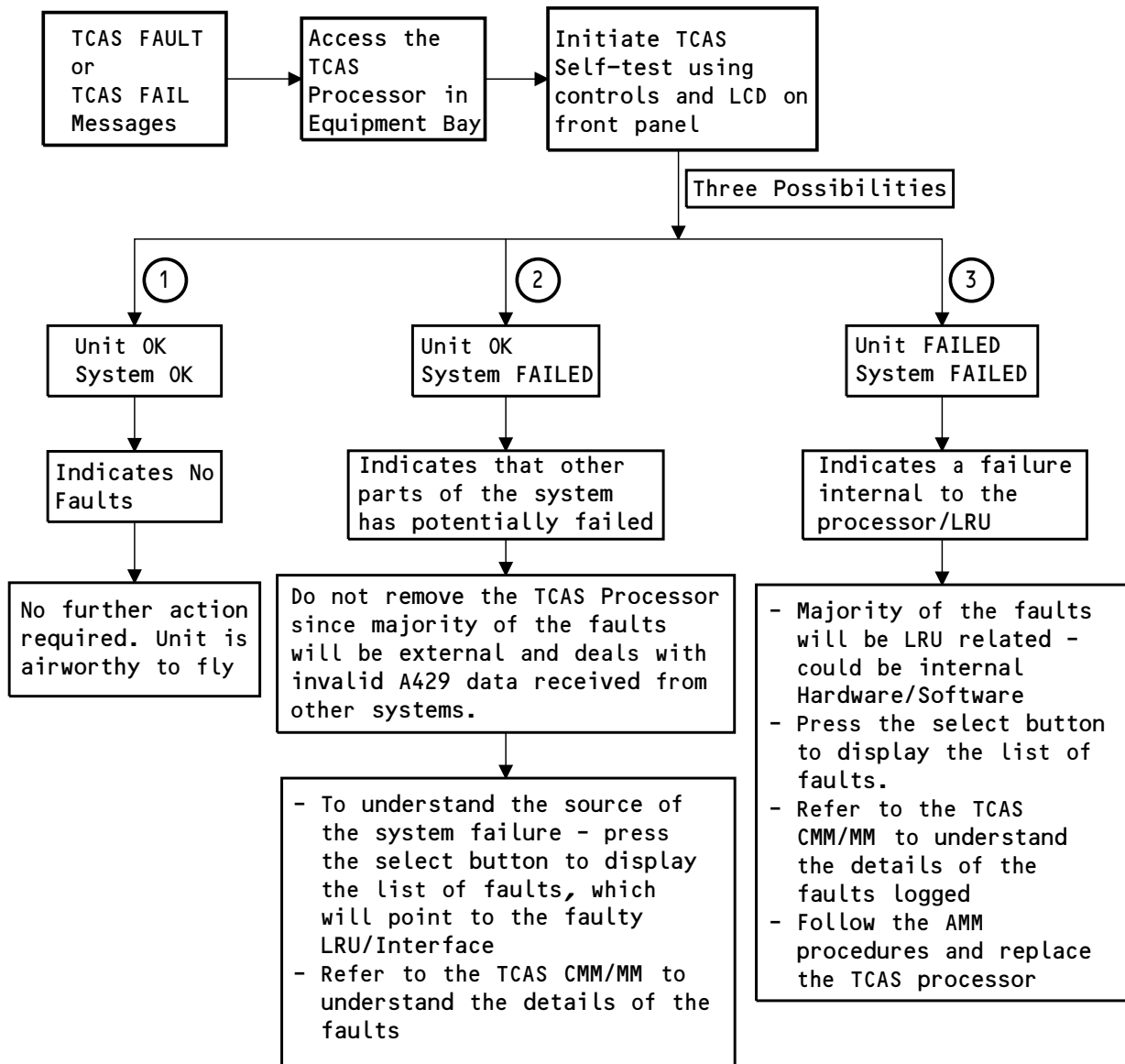
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2552400 S0000607883_V1

TCAS Troubleshooting Tips Pocket Card
Figure 202/34-45-00-990-806

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802. TCAS Computer Problem - Fault Isolation

A. Description

- (1) This task is for this Traffic Alert and Collision Avoidance System (TCAS) maintenance message:
 - (a) TCAS FAIL
- (2) The TCAS Computer has detected an internal problem.

B. Possible Causes

- (1) TCAS Computer, M1485

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01195	TCAS

D. Initial Evaluation

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the maintenance message does not show, then there was an intermittent problem.
 - (b) If the maintenance message shows, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) Replace the TCAS Computer, M1485, at the E1-1 Shelf. These are the tasks:
 - TCAS Computer Removal, AMM TASK 34-45-01-000-801
 - TCAS Computer Installation, AMM TASK 34-45-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the maintenance message does not show, then you corrected the problem.

———— **END OF TASK** ————

803. TCAS Top Antenna Problem - Fault Isolation

A. Description

- (1) This task is for these TCAS maintenance messages:
 - (a) TOP ANT
- (2) The TCAS Computer has detected a fault with the Top TCAS Antenna.

B. Possible Causes

- (1) Damaged /Contaminated Antenna Coax Connectors
- (2) Coax Cable
- (3) Electrical bonding
- (4) TCAS Top Antenna, M1486

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(5) TCAS Computer, M1485

C. Circuit Breakers

(1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01195	TCAS

D. Related Data

- (1) WDM 34-45-21
- (2) SSM 34-45-21
- (3) COAXIAL CABLE - MAINTENANCE PRACTICES, AMM 20-10-72/201

E. Initial Evaluation

- (1) Do the Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the maintenance message does not show, then there was an intermittent fault.
 - (b) If the maintenance message shows, then do the Fault Isolation Procedure below.

NOTE: You can do the optional Fault Isolation Procedure below as applicable.

F. Fault Isolation Procedure

- (1) The wiring checks in the next steps are for coaxial cables. To find a list of applicable tools, do these tasks:
 - Coaxial Cable Inspection, AMM TASK 20-10-72-210-801 (with a Time Domain Reflectometer (TDR))
 - Coaxial Cable and Antenna System Inspection with a Frequency Domain Reflectometer, AMM TASK 20-10-72-200-801.
- (a) Use a Time Domain Reflectometer (TDR) or Frequency Domain Reflectometer (FDR) Test Set to do an electrical check of the Coaxial Cable and TCAS Top Antenna:
 - 1) Remove the TCAS Computer. This is the task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
 - 2) Connect the TDR or FDR Test Set at pins C1, C2, C3, C4 of connector D2743A at the E1-1 Shelf (WDM 34-45-21).
 - 3) Do an electrical check of the Coaxial Cable and the TCAS Top Antenna.
NOTE: The TDR and FDR Test sets have instructions which tell how to do the check of the Coax Cable and TCAS Top Antenna.
 - 4) Disconnect the TDR or FDR Test Set.
 - 5) Re-install the TCAS Computer. This is the task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
- (b) If you find a problem with the Coaxial Cable, then do these steps:
 - 1) Replace the Coaxial Cable (WDM 34-45-21).
 - 2) Do the Repair Confirmation at the end of this task.
- (c) If you do not find a problem with the Coaxial Cable, then continue.

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- (2) Do this check of the electrical bonding:

NOTE: The electrical bonding check can be performed through the antenna bolt hole from the outside of the airplane if one screw is not installed or it can be performed from the inside.

- (a) For the antenna bonding resistance check, access the upper TCAS antenna by removing the applicable ceiling panel(s). The upper TCAS antenna is located at approximately STA 385.00.

NOTE: The electrical bonding check must be performed from the inside of the airplane.

- 1) Remove the insulation blankets, if necessary, to access the upper TCAS antenna.
 - (b) Use an intrinsically safe approved bonding meter, COM-1550 to make sure the resistance from the antenna base to the inside airplane skin is not greater than 0.001 Ohm (SWPM 20-20-00)
 - 1) Install the insulation blankets if they were removed for the electrical bonding check.
 - (c) Install the ceiling panels that were removed for the electrical bonding check.
 - (d) Install the screw if it was removed from the bolt hole.
 - 1) Tighten the screw to 35 in-lb (3.95 N·m) of torque.
- (3) Do this check of the Coax Connectors:
- (a) Make sure that the connectors are installed as follows:

Table 201

CABLE SLEEVE COLOR	TCAS ANTENNA CONNECTOR
Yellow	J1
Black	J2
Blue	J3
Red	J4

- 1) If the connectors are not connected correctly, then do these steps:
 - a) Re-connect the connectors to their correct positions.
 - b) Do the Repair Confirmation at the end of this task.
 - 2) If the connectors are connected correctly, then continue.
 - (b) Make sure that there is no corrosion or unwanted material on the connectors between the TCAS Rack and the Top Antenna.
 - 1) If you find corrosion or unwanted material on the connectors, then do these steps:
 - a) Clean or replace the connectors as necessary.
 - b) Do the Repair Confirmation at the end of this task.
 - 2) If you do not find corrosion or unwanted material on the connectors, then continue.
- (4) Examine the TCAS Antenna for damage.
- (a) If you find a problem with the antenna, then do these steps:
- 1) Replace the TCAS Top Antenna, M1486. These are the tasks:
 - TCAS Antenna Removal, AMM TASK 34-45-02-000-801
 - TCAS Antenna Installation, AMM TASK 34-45-02-400-801
 - a) Do the Repair Confirmation at the end of this task.

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- (b) If you do not find a problem with the TCAS Top Antenna, then continue.
- (5) Replace the TCAS Computer, M1485. These are the tasks:
- TCAS Computer Removal, AMM TASK 34-45-01-000-801
 - TCAS Computer Installation, AMM TASK 34-45-01-400-801
- (a) Do the Repair Confirmation at the end of this task.

G. Alternate Fault Isolation Procedure

SIA ALL; WITH HONEYWELL TCAS ANT P/N 7514081-901

- (1) Do this check of the Coax Connectors:
- (a) Make sure that the connectors are installed as follows:

Table 202

CABLE SLEEVE COLOR	TCAS ANTENNA CONNECTOR
Yellow	J1
Black	J2
Blue	J3
Red	J4

- 1) If the connectors are not connected correctly, then do these steps:
- Re-connect the connectors to their correct positions.
 - Do the Repair Confirmation at the end of this task.
- 2) If the connectors are connected correctly, then continue.
- (b) Make sure that there is no corrosion or unwanted material on the connectors between the TCAS Rack and the Top Antenna.
- 1) If you find corrosion or unwanted material on the connectors, then do these steps:
- Clean or replace the connectors as necessary.
 - Do the Repair Confirmation at the end of this task.
- 2) If you do not find corrosion or unwanted material on the connectors, then continue.
- (2) Remove the TCAS Computer. This is the task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
- (3) With the TCAS Top Antenna connected, do a Resistance check at the TCAS Receptacle as follows (WDM 34-45-21):

**TCAS
RECEPTACLE
D2743A**

	RESISTANCE
pin 1 Ground	1000 ± 100 Ohms
pin 2 Ground	8060 ± 806 Ohms
pin 3 Ground	4020 ± 402 Ohms
pin 4 Ground	2000 ± 200 Ohms

- (a) If the measured Resistance values are in the specified range, then replace the TCAS Computer, M1485. These are the tasks:
- TCAS Computer Removal, AMM TASK 34-45-01-000-801

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- TCAS Computer Installation, AMM TASK 34-45-01-400-801
 - 1) Do the Repair Confirmation at the end of this task.
- (b) If the measured Resistance values are not as specified above, then do these steps:
 - 1) Disconnect the Coax Cable at the Top Antenna.
 - 2) Do the Resistance check at the Top Antenna as follows (WDM 34-45-21):

	TOP ANT	
Yellow	D2745J pin =A1 Ground	RESISTANCE 1000 ± 100 Ohms
Black	D2747J pin =A1 Ground	RESISTANCE 8060 ± 806 Ohms
Blue	D2749J pin =A1 Ground	RESISTANCE 4020 ± 402 Ohms
Red	D2751J pin =A1 Ground	RESISTANCE 2000 ± 200 Ohms

- a) If the Resistance values are not as specified, replace the TCAS Top Antenna.
These are the tasks:
 - TCAS Antenna Removal, AMM TASK 34-45-02-000-801
 - TCAS Antenna Installation, AMM TASK 34-45-02-400-801<1> Do the Repair Confirmation at the end of this task.
 - b) If the Resistance values at the Top Antenna are as specified, then continue.
- (4) Examine the Coax Cable between the TCAS Receptacle at the Rack and the Top Antenna as follows (WDM 34-45-21):

	TCAS RECEPTACLE	STA 385	TOP ANTENNA
YELLOW	D2743A pin 1	D4625P/D4625J pin =A1	D2745P pin =A1
BLACK	D2743A pin 2	D4627P/D4627J pin =A1	D2747P pin =A1
BLUE	D2743A pin 3	D4629P/D4629J pin =A1	D2749P pin =A1
RED	D2743A pin 4	D4633P/D4633J pin =A1	D2751P pin =A1

- (a) If you find a problem (Open or Short Circuit), replace the Coax Cable as necessary.
 - 1) Do the Repair Confirmation at the end of this task.

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H. Repair Confirmation

- (1) Do the Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the maintenance message does not show, then you corrected the problem.
 - (b) If the maintenance message still shows, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

804. TCAS Bottom Antenna Problem - Fault Isolation

A. Description

- (1) This task is for these TCAS maintenance messages:
 - (a) BOT ANT
- (2) The TCAS Computer has detected a fault with the Bottom TCAS Antenna.

B. Possible Causes

- (1) Damaged /Contaminated Antenna Coax Connectors
- (2) Coax Cable
- (3) Electrical bonding
- (4) TCAS Bottom Antenna, M1487
- (5) TCAS Computer, M1485

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01195	TCAS

D. Related Data

- (1) WDM 34-45-21
- (2) SSM 34-45-21
- (3) COAXIAL CABLE - MAINTENANCE PRACTICES, AMM 20-10-72/201

E. Initial Evaluation

- (1) Do the Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the maintenance message does not show, then there was an intermittent fault.
 - (b) If the maintenance message shows, then do the Fault Isolation Procedure below.

NOTE: You can also do the optional Fault Isolation Procedure below as applicable.

F. Fault Isolation Procedure

- (1) The wiring checks in the next steps are for coaxial cables. To find a list of applicable tools, do these tasks:
 - Coaxial Cable Inspection, AMM TASK 20-10-72-210-801 (with a Time Domain Reflectometer (TDR))
 - Coaxial Cable and Antenna System Inspection with a Frequency Domain Reflectometer, AMM TASK 20-10-72-200-801.

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- (a) Use a TDR or FDR Test Set to do an electrical check of the Coaxial Cable and TCAS Bottom Antenna:
 - 1) Remove the TCAS Computer. This is the task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
 - 2) Connect the TDR or FDR Test Set at pins C1, C2, C3, C4 of connector D2743B at the E1-1 Shelf (WDM 34-45-21).
 - 3) Do an electrical check of the Coaxial Cable and the TCAS Top Antenna.
NOTE: The TDR and FDR Test sets have instructions which tell how to do the check of the Coax Cable and TCAS Bottom Antenna.
 - 4) Disconnect the TDR or FDR Test Set.
 - 5) Re-install the TCAS Computer. This is the task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
 - (b) If you find a problem with the Coaxial Cable, then do these steps:
 - 1) Replace the Coaxial Cable (WDM 34-45-21).
 - 2) Do the Repair Confirmation at the end of this task.
 - (c) If you do not find a problem with the Coaxial Cable, then continue.
- (2) Do this check of the electrical bonding:
- NOTE: The electrical bonding check can be performed through the antenna bolt hole from the outside of the airplane if one screw is not installed or it can be performed from the inside.
- (a) For the antenna bonding resistance check, access the bottom TCAS antenna by using the electrical equipment access bay door. The bottom TCAS antenna is located at approximately STA 305.00.
NOTE: The electrical bonding check must be performed from the inside of the airplane.
 - 1) Remove the insulation blankets, if necessary, to access the lower TCAS antenna.
 - (b) Use an intrinsically safe approved bonding meter, COM-1550 to make sure the resistance from the antenna base to the inside airplane skin is not greater than 0.001 Ohm (SWPM 20-20-00)
 - 1) Install the insulation blankets if they were removed for the electrical bonding check.
 - (c) Install the screw if it was removed from the bolt hole.
 - 1) Tighten the screw to 35 in-lb (3.95 N·m) of torque.
- (3) Do this check of the Coax Connectors:
- (a) Make sure that the connectors are installed as follows:

Table 203

CABLE SLEEVE COLOR	TCAS ANTENNA CONNECTOR
Yellow	J1
Black	J2
Blue	J3
Red	J4

- 1) If the connectors are not connected correctly, then do these steps:
 - a) Re-connect the connectors to their correct positions.

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- b) Do the Repair Confirmation at the end of this task.
 - 2) If the connectors are connected correctly, then continue.
- (b) Make sure that there is no corrosion or unwanted material on the connectors between the TCAS Rack and the Bottom Antenna.
 - 1) If you find corrosion or unwanted material on the connectors, then do these steps:
 - a) Clean or replace the connectors as necessary.
 - b) Do the Repair Confirmation at the end of this task.
 - 2) If you do not find corrosion or unwanted material on the connectors, then continue.
- (4) Do this check of the Coaxial Cable:
- (5) Examine the TCAS Antenna for damage.
 - (a) If you find a problem with the antenna, then do these steps:
 - 1) Replace the TCAS Bottom Antenna, M1487. These are the tasks:
 - TCAS Antenna Removal, AMM TASK 34-45-02-000-801
 - TCAS Antenna Installation, AMM TASK 34-45-02-400-801
 - a) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find a problem with the TCAS Bottom Antenna, then continue.
- (6) Replace the TCAS Computer, M1485. These are the tasks:
 - TCAS Computer Removal, AMM TASK 34-45-01-000-801
 - TCAS Computer Installation, AMM TASK 34-45-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.

G. Alternate Fault Isolation Procedure

SIA ALL; WITH HONEYWELL TCAS ANT P/N 7514081-901

- (1) Do this check of the Coax Connectors:
 - (a) Make sure that the connectors are installed as follows:

Table 204

CABLE SLEEVE COLOR	TCAS ANTENNA CONNECTOR
Yellow	J1
Black	J2
Blue	J3
Red	J4

- 1) If the connectors are not connected correctly, then do these steps:
 - a) Re-connect the connectors to their correct positions.
 - b) Do the Repair Confirmation at the end of this task.
 - 2) If the connectors are connected correctly, then continue.
- (b) Make sure that there is no corrosion or unwanted material on the connectors between the TCAS Rack and the Bottom Antenna.
 - 1) If you find corrosion or unwanted material on the connectors, then do these steps:
 - a) Clean or replace the connectors as necessary.

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- b) Do the Repair Confirmation at the end of this task.
- 2) If you do not find corrosion or unwanted material on the connectors, then continue.
- (2) Remove the TCAS Computer. This is the task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
- (3) With the TCAS Bottom Antenna connected, do a Resistance check at the TCAS Receptacle as follows (WDM 34-45-21):

**TCAS
RECEPTACLE**

D2743B

RESISTANCE

pin 1	Ground	1000 ± 100 Ohms
pin 2	Ground	8060 ± 806 Ohms
pin 3	Ground	4020 ± 402 Ohms
pin 4	Ground	2000 ± 200 Ohms

- (a) If the measured Resistance values are in the specified range, then replace the TCAS Computer, M1485. These are the tasks:
- TCAS Computer Removal, AMM TASK 34-45-01-000-801
 - TCAS Computer Installation, AMM TASK 34-45-01-400-801
- 1) Do the Repair Confirmation at the end of this task.
- (b) If the measured Resistance values are not as specified above, then do these steps:
- 1) Disconnect the Coax Cable at the Bottom Antenna.
- 2) Do the Resistance check at the Bottom Antenna as follows (WDM 34-45-21):

	BOT ANT D2753J	
Yellow	pin =A1	1000 ± 100 Ohms
Black	pin =A1	8060 ± 806 Ohms
Blue	pin =A1	4020 ± 402 Ohms
Red	pin =A1	2000 ± 200 Ohms

- a) If the Resistance values are not as specified, replace the TCAS Bottom Antenna. These are the tasks:
- TCAS Antenna Removal, AMM TASK 34-45-02-000-801
 - TCAS Antenna Installation, AMM TASK 34-45-02-400-801
- <1> Do the Repair Confirmation at the end of this task.
- b) If the Resistance values at the Bottom Antenna are as specified, then continue.

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- (4) Examine the Coax Cable between the TCAS Receptacle at the Rack and the Bottom Antenna as follows (WDM 34-45-21):

	TCAS RECEPTACLE	BOTTOM ANT
YELLOW	D2743B pin 1	D2753P pin =A1
BLACK	D2743B pin 2	D2755P pin =A1
BLUE	D2743B pin 3	D2757P pin =A1
RED	D2743B pin 4	D2759P pin =A1

- (a) If you find a problem (Open or Short Circuit), replace the Coax Cable as necessary.
1) Do the Repair Confirmation at the end of this task.

SIA ALL

H. Repair Confirmation

- (1) Do the Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
(a) If the maintenance message does not show, then you corrected the problem.
(b) If the maintenance message still shows, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

805. TCAS Computer No Input from Left ATC Transponder - Fault Isolation

A. Description

- (1) This task is for this TCAS maintenance message:
(a) X1
(2) TCAS computer has found a fault with the left ATC transponder.

B. Possible Causes

- (1) Left ATC transponder, M163
(2) Wiring
(3) TCAS computer, M1485
(4) Top Air Traffic Control (ATC) antenna
(5) Bottom ATC antenna

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1
B	6	C01195	TCAS

D. Related Data

- (1) WDM 34-45-21
(2) SSM 34-45-21
(3) WDM 34-53-11
(4) SSM 34-53-11

E. Initial Evaluation

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
- (a) If the maintenance message does not show, then there was an intermittent fault.
- (b) If the maintenance message shows, then do the Fault Isolation Procedure below.
- (2) If the operator experiences an intermittent failure for the TCAS system, check these components:
- (a) ATC antennas for cracking and/or corrosion
- (b) ATC antenna switches (S942 and S943) for moisture contamination in the co-axial connectors.
- (3) Do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.

F. Fault Isolation Procedure

- (1) Do a check of the ATC antennas. These are the tasks:
- L Air Traffic Control (ATC) Transponder, Top ATC Antenna Problem - Fault Isolation, 34-53 TASK 806
 - L Air Traffic Control (ATC) Transponder, Bottom ATC Antenna Problem - Fault Isolation, 34-53 TASK 808
- (2) Replace the left ATC transponder, M163, at the E1-2 shelf.
- These are the tasks:
- ATC Transponder Removal, AMM TASK 34-53-02-020-801,
ATC Transponder Installation, AMM TASK 34-53-02-400-801.
- (a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
- 1) If the maintenance message does not show, then you corrected the fault.
- 2) If the maintenance message shows, then continue.
- (3) Do this check of the wiring:
- (a) Remove the left ATC transponder, M163. To remove it, do this task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
- (b) Remove the TCAS computer, M1485. To remove it, do this task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.

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- (c) Remove the ACARS communications management unit, M2127. To remove it, do this task: ACARS Communications Management Unit (CMU) Removal, AMM TASK 23-27-33-020-801
- (d) Do a wiring check between these pins of connector D149A at the E1-2 shelf and connector D2743E at the E1-1 shelf (WDM 34-45-21).

D149A	D2743E
pin E5	pin J15
pin F5	pin K15
pin G5	pin F14
pin H5	pin G14

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the left ATC transponder, M163. To install it, do this task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - 3) Re-install the TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
 - 4) Re-install the ACARS communications management unit, M2127. To install it, do this task: ACARS Communications Management Unit (CMU) Installation, AMM TASK 23-27-33-420-801
 - 5) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - a) If the maintenance message does not show, then you corrected the fault.
- (f) If you do not find a problem with the wiring, then continue.
- (4) Replace the TCAS computer, M1485.

These are the tasks:
TCAS Computer Removal, AMM TASK 34-45-01-000-801,
TCAS Computer Installation, AMM TASK 34-45-01-400-801.

 - (a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - 1) If the maintenance message does not show, then you corrected the fault.

————— **END OF TASK** —————

806. TCAS Computer No Input from Right ATC Transponder - Fault Isolation

A. Description

- (1) This task is for this TCAS maintenance message:
 - (a) X2
- (2) The TCAS computer has found a fault with the right ATC transponder.

B. Possible Causes

- (1) Right ATC transponder, M381
- (2) Wiring
- (3) TCAS computer, M1485
- (4) Top ATC antenna

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- (5) Bottom ATC antenna

C. Circuit Breaker

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01195	TCAS

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2

D. Related Data

- (1) WDM 34-45-21
- (2) SSM 34-45-21
- (3) WDM 34-53-21
- (4) SSM 34-53-21

E. Initial Evaluation

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the maintenance message does not show, then there was an intermittent fault.
 - (b) If the maintenance message shows, then do the Fault Isolation Procedure below.
- (2) If the operator experiences an intermittent failure for the TCAS system, check these components:
 - (a) ATC antennas for cracking and/or corrosion
 - (b) ATC antenna switches (S942 and S943) for moisture contamination in the co-axial connectors.
- (3) Do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.

F. Fault Isolation Procedure

- (1) Do a check of the ATC antennas. These are the tasks:
 - R Air Traffic Control (ATC) Transponder, Top ATC Antenna Problem - Fault Isolation, 34-53 TASK 807
 - R Air Traffic Control (ATC) Transponder, Bottom ATC Antenna Problem - Fault Isolation, 34-53 TASK 809
- (2) Replace the right ATC transponder, M381.

These are the tasks:

ATC Transponder Removal, AMM TASK 34-53-02-020-801,
ATC Transponder Installation, AMM TASK 34-53-02-400-801.

 - (a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - 1) If the maintenance message does not show, then you corrected the fault.
 - 2) If the maintenance message shows, then continue.
- (3) Do this check of the wiring:

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- (a) Remove the right ATC transponder, M381. To remove it, do this task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
- (b) Remove the TCAS computer, M1485. To remove it, do this task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
- (c) Remove the ACARS communications management unit, M2128. To remove it, do this task: ACARS Communications Management Unit (CMU) Removal, AMM TASK 23-27-33-020-801
- (d) Do a wiring check between these pins of connector D155A at the E1-5 shelf and connector D2743E at the E1-1 shelf (WDM 34-45-21).

D155A	D2743E
pin E5	pin A14
pin F5	pin B14
pin G5	pin H14
pin H5	pin J14

- (e) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the right ATC transponder, M381. To install it, do this task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - 3) Re-install the TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
 - 4) Re-install the ACARS communications management unit, M2128. To install it, do this task: ACARS Communications Management Unit (CMU) Installation, AMM TASK 23-27-33-420-801
 - 5) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - a) If the maintenance message does not show, then you corrected the fault.
- (f) If you did not find a problem with the wiring, then continue.
- (4) Replace the TCAS computer, M1485.

These are the tasks:
TCAS Computer Removal, AMM TASK 34-45-01-000-801,
TCAS Computer Installation, AMM TASK 34-45-01-400-801.

 - (a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - 1) If the maintenance message does not show, then you corrected the fault.

———— **END OF TASK** ————

807. TCAS, Radio Altimeter Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) RAD ALT
- (2) The TCAS computer has found a fault in the data from the radio altimeters.

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B. Possible Causes

- (1) Radio altimeter #1, M1735.
- (2) Radio altimeter #2, M1736.
- (3) Wiring.
- (4) TCAS computer, M1485.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1
B	6	C01195	TCAS

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C01355	LANDING GEAR AIR/GND SYS 2

D. Related Data

- (1) (WDM 34-33-11).
- (2) (WDM 34-33-21).
- (3) (WDM 34-45-11).
- (4) (SSM 34-33-11).
- (5) (SSM 34-33-21).
- (6) (SSM 34-45-11).

E. Initial Evaluation

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the maintenance message does not show, then there was an intermittent fault.
 - (b) If the maintenance message shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Examine the radio altimeter
 - (a) If the radio altimeter shows an altitude of more than 50 feet while the AIR/GND logic is in GND, then do these steps:

- 1) Open and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C01355	LANDING GEAR AIR/GND SYS 2

- 2) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.

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- a) If the maintenance message does not show, then you corrected the fault.
- (b) If the radio altimeter shows an altitude of less than 50 feet, then continue.
- (2) Replace the radio altimeter #1, M1735.
- These are the tasks:
- Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801,
- Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
- (a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
- 1) If the maintenance message does not show, then you corrected the fault.
- 2) If the maintenance message shows, then continue.
- (3) Replace the radio altimeter #2, M1736.
- These are the tasks:
- Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801,
- Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
- (a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
- 1) If the maintenance message does not show, then you corrected the fault.
- 2) If the maintenance message shows, then continue.
- (4) Do this check of the wiring for radio altimeter #1:
- (a) Remove the radio altimeter #1, M1735. To remove it, do this task: Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801.
- (b) Remove the TCAS computer, M1485. To remove it, do this task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
- (c) Do a wiring check between these pins of connector D3667B, at the E3-1 shelf, and connector D2743E, at the E1-1 shelf (WDM 34-45-11).
- | D3667B | D2743E |
|------------------|---------------|
| pin G2 | pin H13 |
| pin G3 | pin J13 |
- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
- 2) Re-install the Radio Altimeter #1, M1735. To install it, do this task: Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
- 3) Re-install the TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
- 4) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
- a) If the maintenance message does not show, then you corrected the fault.

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- (e) If you do not find a problem with the wiring, then continue.
 - 1) Re-install the radio altimeter #1, M1735. To install it, do this task: Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
- (5) Do this check of the wiring for radio altimeter #2:
 - (a) Remove the radio altimeter #2, M1736. To remove it, do this task: Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801.
 - (b) Do a wiring check between these pins of connector D3669B, at the E3-1 shelf, and connector D2743F, at the E1-1 shelf (WDM 34-45-11).

D3669B	D2743F
pin G2	pin D3
pin G3	pin E3
- (c) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the radio altimeter #2, M1736. To install it, do this task: Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
 - 3) Re-install the TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
 - 4) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - a) If the maintenance message does not show, then you corrected the fault.
- (d) If you do not find a problem with the wiring, then continue.
 - 1) Re-install the radio altimeter #2, M1736. To install it, do this task: Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
- (6) Install a new TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
 - (a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - 1) If the maintenance message does not show, then you corrected the fault.

————— **END OF TASK** —————

808. TCAS Resolution Advisory Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) RA DISP
- (2) The resolution advisory displays have reported a problem to the TCAS computer.

B. Possible Causes

- (1) Display electronic unit (DEU) 1, M1808.
- (2) Display electronic unit (DEU) 2, M1809.
- (3) Wiring.

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- (4) TCAS computer, M1485.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01195	TCAS

D. Related Data

- (1) (WDM 34-45-11).
- (2) (WDM 31-62-15).
- (3) (WDM 31-62-25).
- (4) (SSM 31-62-15).
- (5) (SSM 31-62-25).
- (6) (SSM 34-45-11).

E. Initial Evaluation

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the maintenance message does not show, then there was an intermittent fault.
 - (b) If the maintenance message shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If you find CDS CURRENT STATUS faults, then go to the fault isolation task for the applicable CDS maintenance message to correct the fault.
 - 1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - a) If the maintenance message does not show, then you corrected the fault.
 - b) If the maintenance message shows, then continue.
 - (b) If you did not find any CDS CURRENT STATUS faults, then continue.
 - (2) Do this check of the RA status discretes (WDM 34-45-11):
 - (a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP

- (b) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - 1) If TCAS FAIL shows on the first officer's display, then the RA 2 status discrete is an open circuit.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (e) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.

- 1) If TCAS FAIL shows on the captain's display, then the RA 1 status discrete is an open circuit.

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (g) If one of the RA status discretes is an open circuit, then do these steps:

- 1) Replace the applicable DEU, M1808 (DEU 1) or M1809 (DEU 2).

These are the tasks:

Display Electronic Unit Removal, AMM TASK 31-62-21-000-801,

Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

- a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.

<1> If the maintenance message does not show, then you corrected the fault.

<2> If the maintenance message shows, then continue.

- 2) Do this wire check of the applicable RA status discrete:

- a) Remove the applicable DEU, M1808 (DEU 1) or M1809 (DEU 2). To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
- b) Remove the TCAS computer, M1485. To remove it, do this task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
- c) Do a wire check between these pins for the applicable RA Status discrete (WDM 34-45-11):

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	DEU CONNECTOR	TCAS COMPUTER CONNECTOR
RA 1	D3973E (DEU 1) pin D4	D2743E pin C14
RA 2	D3975E (DEU 2) pin D4	D2743E pin E13

- d) If you find a problem with the wiring, then do these steps:
- <1> Repair the wiring.
 - <2> Re-install the applicable DEU, M1808 (DEU 1) or M1809 (DEU 2). To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801
 - <3> Re-install the TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
 - <4> Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - <a> If the maintenance message does not show, then you corrected the fault.

3) If you do not find a problem with the RA status circuits, then continue.

- (3) Replace the TCAS computer, M1485.

These are the tasks:

TCAS Computer Removal, AMM TASK 34-45-01-000-801,

TCAS Computer Installation, AMM TASK 34-45-01-400-801.

- (a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.

- 1) If the maintenance message does not show, then you corrected the fault.

————— **END OF TASK** —————

809. TCAS, Inertial Reference System Problem - Fault Isolation

A. Description

- (1) The TCAS computer has found a problem in the data from the inertial reference system portion of the ADIRU.

B. Possible Causes

- (1) Left air data inertial reference unit (ADIRU), M1749.
- (2) Wiring.
- (3) TCAS computer, M1485.

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01195	TCAS
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

D. Related Data

- (1) (WDM 34-45-11).
- (2) (WDM 34-21-13).
- (3) (SSM 34-21-13).

E. Initial Evaluation

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the maintenance message does not show, then there was an intermittent fault.
 - (b) If the maintenance message shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) For the left ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If you find ADIRS CURRENT STATUS faults, then go to the fault isolation task for the applicable ADIRS maintenance message to correct the fault.
 - 1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - a) If the maintenance message does not show, then you corrected the fault.
 - (b) If you do not find any ADIRS CURRENT STATUS faults, then continue.
- (2) Do this check of the wiring:
 - (a) Remove the TCAS computer, M1485. To remove it, do this task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
 - (b) Remove the Left ADIRU, M1749. To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (c) Do a wiring check between these pins of connector D2743E, at the E1-1 shelf, and connector D3687B, at the E5-2 shelf.

D3687B	D2743E
pin C10	pin A7
pin C11	pin B7

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.

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- 2) Re-install the TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
- 3) Re-install the left ADIRU, M1749. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- 4) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - a) If the maintenance message does not show, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
 - 1) Re-install the left ADIRU, M1749. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (3) Install a the TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
 - (a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - 1) If the maintenance message does not show, then you corrected the fault.

————— **END OF TASK** —————

810. TCAS Program Pins Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) PP
- (2) The TCAS computer has found a problem in the program pin configuration.

B. Possible Causes

- (1) Wiring.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01195	TCAS

D. Related Data

- (1) WDM 34-45-21.
- (2) WDM 34-45-11.
- (3) SSM 34-45-21.
- (4) SSM 34-45-11.

E. Initial Evaluation

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the maintenance message does not show, then there was an intermittent fault.
 - (b) If the maintenance message shows, then do the Fault Isolation Procedure below.

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F. Fault Isolation Procedure

- (1) Do this check of the TCAS computer program pins:
 - (a) Remove the TCAS computer, M1485. To remove it, do this task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
 - (b) Do a check of the program pin wiring (WDM 34-45-21, SSM 34-45-21).
 - (c) Put the program pins to their correct configuration (WDM 34-45-21, SSM 34-45-21).
 - (d) Re-install the TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
 - (e) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - 1) If the maintenance message does not show, then you corrected the fault.

END OF TASK

811. TCAS Computer No Input from an ATC Transponder - Fault Isolation

A. Description

- (1) This task is for this TCAS maintenance message:
 - (a) XPDR BUS
- (2) The TCAS computer has found a fault with an ATC transponder.

B. Possible Causes

- (1) ATC transponder, M163 (left) or M381 (right).
- (2) Wiring.
- (3) TCAS computer, M1485.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1
B	6	C01195	TCAS

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2

D. Related Data

- (1) (SSM 34-53-11).
- (2) (SSM 34-45-21).
- (3) (WDM 34-45-21).
- (4) (WDM 34-53-11).

E. Initial Evaluation

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the maintenance message does not show, then there was an intermittent fault.

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- (b) If the maintenance message shows with the transponder select switch on the ATC control panel at ATC 1 or L (ATC 2 or R), then the fault is in the circuit for the left ATC (right ATC). Do the Fault Isolation Procedure below for the applicable ATC.

F. Fault Isolation Procedure

- (1) Replace the left ATC transponder, M163, at the E1-2 shelf or the right ATC transponder, M381, at the E1-5 shelf as applicable.

These are the tasks:

ATC Transponder Removal, AMM TASK 34-53-02-020-801,

ATC Transponder Installation, AMM TASK 34-53-02-400-801.

- (a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
- 1) If the maintenance message does not show, then you corrected the fault.
 - 2) If the maintenance message shows, then continue.
- (2) Do this check of the wiring:
- (a) Remove the ATC transponder, M163 (left) or M381 (right). To remove it, do this task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
- (b) Remove the TCAS computer, M1485. To remove it, do this task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
- (c) Do a wiring check between these pins for the applicable ATC circuit (WDM 34-45-21):

	ATC TRANSPONDER CONNECTOR	TCAS COMPUTER CONNECTOR
LEFT	D149A	D2743E
	pin E5	pin J15
	pin F5	pin K15
	pin G5	pin F14
	pin H5	pin G14
RIGHT	D155A	D2743E
	pin E5	pin A14
	pin F5	pin B14
	pin G5	pin H14
	pin H5	pin J14

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ATC transponder, M163 (left) or M381 (Right). To install it, do this task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - 3) Re-install the TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
 - 4) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - a) If the maintenance message does not show, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.

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- (3) Replace the TCAS computer, M1485.
These are the tasks:
TCAS Computer Removal, AMM TASK 34-45-01-000-801,
TCAS Computer Installation, AMM TASK 34-45-01-400-801.
- (a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
- 1) If the maintenance message does not show, then you corrected the fault.

———— **END OF TASK** ————

812. TCAS False Alert or Suppression Coax Problem - Fault Isolation

A. Description

- (1) This task is for this TCAS maintenance message:
(a) SP
- (2) The TCAS computer has detected a fault with the suppression bus.
- (3) The TCAS false target appears on top of or very close to the own ship.

B. Possible Causes

- (1) Coax Tees, M1908, M1346 and M1347
- (2) Coax Cables
- (3) TCAS Computer, M1485
- (4) Distance Measuring Equipment (DME)-1 (2) Interrogator, M164 (M165)
- (5) ATC-1 (2) Transponder, M163 (M381)

C. Related Data

- (1) SSM 34-53-31
- (2) WDM 34-53-31
- (3) WDM 34-55-11, 34-55-21

D. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	14	C00192	RADIO NAVIGATION DME 2
E	14	C01194	ATC ANT SWITCH

E. Initial Evaluation

- (1) Do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
- (2) Do this task: DME Interrogator BITE Procedure, 34-55 TASK 801.
- (3) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.

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- (a) If the maintenance message does not show, then there was an intermittent problem.
- (b) If the maintenance message shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Remove the TCAS Computer, M1485. This is the task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
- (2) Remove the applicable ATC-1 (2) Transponder, M163 (M381). This is the task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
- (3) Remove the applicable DME-1 (2) Interrogator, M164 (M165). This is the task: DME Interrogator Removal, AMM TASK 34-55-21-000-801.
- (4) Do these checks of the Coax Cables (AMM PAGEBLOCK 34-45-00/201 Config 1):

- (a) Check for a shorted coax.
- (b) Disconnect connector D10161 from the Coax Tee, M1908.

NOTE: The Coax Tee, M1908 is on the E1-1 Shelf in the Electronic Equipment (EE) Bay.

- 1) Do a check for an open circuit as follows:

TCAS COMPUTER, M1485 D2743C	COAX TEE, M1908 D10161
pin 12	pin A1

- 2) If there is an open circuit, repair or replace the Coax Cable between the TCAS Computer, M1485 and the Coax Tee, M1908.
- (c) Disconnect connector D10163 from the Coax Tee, M1908 and disconnect connector D2473 from the Coax Tee, M1346.

- 1) Do a check for an open circuit as follows:

COAX TEE, M1908 D10163	COAX TEE, M1346 D2473
pin A1	pin A1

- 2) If there is an open circuit, repair or replace the Coax Cable between Coax Tee, M1908 and Coax Tee, M1346.
- (d) Disconnect connector D10159 from the Coax Tee, M1908 and disconnect connector D2851 from the Coax Tee, M1347.

NOTE: The Coax Tee, M1347 is on the E1-5 Shelf in the EE Bay.

- 1) Do a check for an open circuit as follows:

COAX TEE, M1908 D10159	COAX TEE, M1347 D2851
pin A1	pin A1

- 2) If there is an open circuit, repair or replace the Coax Cable between Coax Tee, M1908 and Coax Tee, M1347.

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- (e) Disconnect connector D2477 from the Coax Tee, M1346.

NOTE: The Coax Tee, M1346 is on the E1-2 Shelf in the EE Bay.

- 1) Do a check for an open circuit as follows:

COAX TEE, M1346 D2477	ATC-1 TRANSPONDER, M163 D149C
pin A1	pin 12

- 2) If there is an open circuit, repair or replace the Coax Cable between Coax Tee, M1346 and ATC-1 Transponder, M163.

- (f) Disconnect connector D2475 from the Coax Tee, M1346.

- 1) Do a check for an open circuit as follows:

COAX TEE, M1346 D2475	DME-1 INTERROGATOR, M164 D161C
pin A1	pin 12

- 2) If there is an open circuit, repair or replace the Coax Cable between Coax Tee, M1346 and DME-1 Interrogator, M164.

- (g) Disconnect connector D2853 from the Coax Tee, M1347.

- 1) Do a check for an open circuit as follows:

COAX TEE, M1347 D2853	ATC-2 TRANSPONDER, M381 D155C
pin A1	pin 12

- 2) If there is an open circuit, repair or replace the Coax Cable between Coax Tee, M1347 and ATC-2 Transponder, M381.

- (h) Disconnect connector D2849 from the Coax Tee, M1347.

- 1) Do a check for an open circuit as follows:

COAX TEE, M1347 D2849	DME-2 INTERROGATOR, M165 D169C
pin A1	pin 12

- 2) If there is an open circuit, repair or replace the Coax Cable between Coax Tee, M1347 and DME-2 Interrogator, M165.

- (5) If no wiring faults were found, replace the Coax Tees, M1908, M1346 and M1347. Otherwise, continue.

- (6) Re-install the TCAS Computer, M1485. This is the task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.

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- (7) Re-install the applicable ATC-1 (2) Transponder, M163 (M381). This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
- (8) Re-install the applicable DME-1 (2) Interrogator, M164 (M165). This is the task: DME Interrogator Installation, AMM TASK 34-55-21-400-801.
- (9) Do the Repair Confirmation at the end of this task.
- (10) Replace the TCAS Computer, M1485 on the E1-1 Shelf. These are the tasks:
 - TCAS Computer Removal, AMM TASK 34-45-01-000-801
 - TCAS Computer Installation, AMM TASK 34-45-01-400-801
- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the maintenance message does not show, then you corrected the problem.
 - (b) If the maintenance message shows, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

814. TCAS Intruder Symbol Problem - Fault Isolation

A. Description

- (1) The navigation display does not show the correct TCAS data or TCAS data is missing.

B. Initial Evaluation

- (1) Do this task: TCAS - System test AMM TASK 34-45-00-730-801 or AMM TASK 34-45-00-730-802.
 - (a) If the system test is satisfactory, then there was an intermittent fault.
 - (b) If the system test is not satisfactory, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the TCAS BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
 - 1) Do this task: TCAS - System test AMM TASK 34-45-00-730-801 or AMM TASK 34-45-00-730-802.
 - 2) If the system test is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

815. TCAS OFF Message - Fault Isolation

A. Description

- (1) The TCAS OFF message shows on the navigation display when the TCAS/ATC control panel selector is in the TA or TA/RA position.

B. Possible Causes

- (1) ATC control panel, P8-29.
- (2) ATC transponder, M163 (left) or M381 (right).

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- (3) Wiring
- (4) TCAS Computer, M1485.
- (5) ATC antenna switches, S942 and S943.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

D. Related Data

- (1) (SSM 34-45-21).
- (2) (SSM 34-53-11).
- (3) (SSM 34-53-21).
- (4) (WDM 34-45-21).
- (5) (WDM 34-53-11).
- (6) (WDM 34-53-21).

E. Initial Evaluation

- (1) Make sure the selector switch on the ATC control panel is at the TA or TA/RA position.
- (2) Put the ATC switch on the ATC control panel to the 1 or L position.
- (3) Make sure the transponder fail light on the ATC control panel is off.
 - (a) If the transponder fail light is on, then the fault is in the ATC system. To find the fault, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
- (4) Look for the TCAS OFF message on the navigation display.
- (5) Put the ATC switch on the ATC control panel to the 2 or R position.
- (6) Make sure the transponder fail light on the ATC control panel is off.
 - (a) If the transponder fail light is on, then the fault is in the ATC system. To find the fault, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
- (7) Look for the TCAS OFF message on the navigation display.
- (8) If the TCAS OFF message does not show in either ATC switch position, then there was an intermittent fault.
- (9) If the TCAS OFF message shows in only one ATC switch position, then do the Fault Isolation Procedure - One ATC below.
- (10) If the TCAS OFF message shows in both ATC switch positions, then do the Fault Isolation Procedure - Both ATCs below.

F. Fault Isolation Procedure - One ATC

NOTE: You must do the steps in the Initial Evaluation before you can do these steps.



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- (1) Open and close the applicable ATC transponder circuit breaker and the ATC antenna switch circuit breaker.

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

- (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then continue.
- (2) For the applicable ATC transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If the ATC transponder BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If the ATC transponder BITE test does not show a fault, then continue.
- (3) Replace the ATC control panel, P8-29.

These are the tasks:

ATC Control Panel Removal, AMM TASK 34-53-03-000-801,
ATC Control Panel Installation, AMM TASK 34-53-03-400-801.

 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then continue.
- (4) Replace the TCAS computer, M1485.

These are the tasks:

TCAS Computer Removal, AMM TASK 34-45-01-000-801,
TCAS Computer Installation, AMM TASK 34-45-01-400-801.

 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then continue.
- (5) Replace the ATC antenna switch, S942.

These are the tasks:

ATC Antenna Switch Removal, AMM TASK 34-53-04-000-801,
ATC Antenna Switch Installation, AMM TASK 34-53-04-400-801.

 - (a) Do the Repair Confirmation at the end of this task.
 - (b) If the Repair Confirmation is not satisfactory, then continue.
- (6) Replace the ATC antenna switch, S943.

These are the tasks:

ATC Antenna Switch Removal, AMM TASK 34-53-04-000-801,
ATC Antenna Switch Installation, AMM TASK 34-53-04-400-801

 - (a) Do the Repair Confirmation at the end of this task.

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G. Fault Isolation Procedure - Both ATCs

NOTE: You must do the steps in the Initial Evaluation before you can do these steps.

- (1) Open and close these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

- (a) Do the Repair Confirmation at the end of this task.
(b) If the Repair Confirmation is not satisfactory, then continue.
- (2) Replace the ATC control panel, P8-29.

These are the tasks:

ATC Control Panel Removal, AMM TASK 34-53-03-000-801,
ATC Control Panel Installation, AMM TASK 34-53-03-400-801.

- (a) Do the Repair Confirmation at the end of this task.
(b) If the Repair Confirmation is not satisfactory, then continue.
- (3) Replace the TCAS computer, M1485.

These are the tasks:

TCAS Computer Removal, AMM TASK 34-45-01-000-801,
TCAS Computer Installation, AMM TASK 34-45-01-400-801.

- (a) Do the Repair Confirmation at the end of this task.
(b) If the Repair Confirmation is not satisfactory, then continue.
- (4) Replace the ATC antenna switch, S942.

These are the tasks:

ATC Antenna Switch Removal, AMM TASK 34-53-04-000-801,
ATC Antenna Switch Installation, AMM TASK 34-53-04-400-801.

- (a) Do the Repair Confirmation at the end of this task.
(b) If the Repair Confirmation is not satisfactory, then continue.
- (5) Replace the ATC antenna switch, S943.

These are the tasks:

ATC Antenna Switch Removal, AMM TASK 34-53-04-000-801,
ATC Antenna Switch Installation, AMM TASK 34-53-04-400-801

- (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this check for the TCAS OFF message:
- (a) Make sure the selector switch on the ATC control panel is at the TA or TA/RA position.
(b) Put the ATC switch on the ATC control panel to the 1 or L position.

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- (c) Look for the TCAS OFF message on the navigation display.
- (d) Put the ATC switch on the ATC control panel to the 2 or R position.
- (e) Look for the TCAS OFF message on the navigation display.
- (f) If the TCAS OFF message does not show in either ATC switch position, then you corrected the fault.

———— **END OF TASK** ————

816. TCAS Voice Annunciation (Aural) Problem - Fault Isolation

A. Description

- (1) The TCAS aural messages do not sound.

B. Possible Causes

- (1) Remote electronic unit (REU), M1353.
- (2) TCAS computer, M1485.
- (3) Wiring.

C. Related Data

- (1) (SSM 34-45-11).
- (2) (WDM 34-45-11).

D. Initial Evaluation

- (1) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - (a) If the operational test is satisfactory, then there was an intermittent fault.
 - (b) If the operational test is not satisfactory, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the TCAS BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
 - 1) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - 2) If the operational test is satisfactory, then you corrected the fault.
 - (b) If the TCAS BITE test does not show a fault, then continue.
- (2) Do this check of the REU:
 - (a) Push the SYS TEST switch on the GROUND PROXIMITY module.
NOTE: The GROUND PROXIMITY module is on the first officer's instrument panel, P3.
 - (b) If you do not hear the ground proximity aural annunciations during the test, then do these steps:
 - 1) Replace the REU, M1353.
These are the tasks:
Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801,
Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
 - 2) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - a) If the operational test is satisfactory, then you corrected the fault.

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- (c) If you hear the ground proximity aural annunciations during the test, then continue.
- (3) Do this check of the wiring:
- (a) Remove the TCAS computer, M1485. To remove it, do this task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
 - (b) Remove the REU, M1353. To remove it, do this task: Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
 - (c) Do a check of the wiring between these pins of connector D2743E for the TCAS computer and D2501A for the REU:
- | D2743E | D2501A |
|------------------|---------------|
| pin F3 | pin H15 |
| pin F3 | pin F14 |
| pin G3 | pin J15 |
| pin G3 | pin F13 |
- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the REU. To install it, do this task: Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
 - 3) Re-install the TCAS computer. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
 - 4) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - a) If the operational test is satisfactory, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- (4) Install a new TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
- (a) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - 1) If the operational test is satisfactory, then you corrected the fault.

END OF TASK

817. TCAS Display Blank - Fault Isolation

A. Description

- (1) The navigation display does not show any TCAS data.

B. Initial Evaluation

- (1) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
- (a) If the operational test is satisfactory, then there was an intermittent fault.
 - (b) If the operational test is not satisfactory, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
- (a) If the TCAS BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
 - 1) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.

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- 2) If the operational test is satisfactory, then you corrected the fault.
- (b) If the TCAS BITE test does not show a fault, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If the CDS BITE test shows a TCAS data fault, then go to the fault isolation task for that CDS maintenance message to correct the fault.
 - 1) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - 2) If the operational test is satisfactory, then you corrected the fault.

———— **END OF TASK** ————

818. TCAS TEST FAIL - Fault Isolation

A. Description

- (1) This task is for a TEST FAIL indication and an aural test fail annunciation after the TCAS system test. You do the TCAS system test from the TEST switch on the ATC control panel.

B. Initial Evaluation

- (1) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - (a) If the operational test is satisfactory, then there was an intermittent fault.
 - (b) If the operational test is not satisfactory, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the TCAS BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
 - 1) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - 2) If the operational test is satisfactory, then you corrected the fault.

———— **END OF TASK** ————

819. TCAS System Test Does Not Start when the TEST Switch is Pushed - Fault Isolation

A. Description

- (1) You do the TCAS system test from the TEST switch on the ATC control panel. The control signal goes through the ATC transponder to the TCAS computer.
- (2) You can also start the TCAS system test when you do the TCAS BITE test.

B. Possible Causes

- (1) ATC control panel, P8-29.
- (2) ATC transponder, M163 (left) or M381 (right).
- (3) Wiring.
- (4) TCAS computer, M1485.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2

D. Related Data

- (1) (SSM 34-45-21).
- (2) (SSM 34-53-11).
- (3) (SSM 34-53-21).
- (4) (WDM 34-45-21).
- (5) (WDM 34-53-11).
- (6) (WDM 34-53-21).

E. Initial Evaluation

- (1) Put the ATC switch on the ATC control panel to the 1 or L position.
- (2) Make sure the transponder fail light on the ATC control panel is off.
 - (a) If the transponder fail light is on, then the fault is in the ATC system. To find the fault, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
- (3) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
- (4) Put the ATC switch on the ATC control panel to the 2 or R position.
- (5) Make sure the transponder fail light on the ATC control panel is off.
 - (a) If the transponder fail light is on, then the fault is in the ATC system. To find the fault, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
- (6) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
- (7) If the operational test is satisfactory in both ATC switch positions, then there was an intermittent fault.
- (8) If test does not start in only one ATC switch position, then do the Fault Isolation Procedure - One ATC below.
- (9) If test does not start in both ATC switch positions, then do the Fault Isolation Procedure - Both ATCs below.

F. Fault Isolation Procedure - One ATC

NOTE: You must do the steps in the Initial Evaluation before you can do these steps.

- (1) For the applicable ATC transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If the ATC transponder BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
 - 1) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - a) If the operational test is satisfactory, then you corrected the fault.
 - (b) If the ATC transponder BITE test does not show a fault, then continue.
- (2) Replace the ATC control panel, P8-29.

These are the tasks:

ATC Control Panel Removal, AMM TASK 34-53-03-000-801,

ATC Control Panel Installation, AMM TASK 34-53-03-400-801.

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- (a) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - 1) If the operational test is satisfactory, then you corrected the fault.
 - 2) If the test does not start, then continue.
- (3) Replace the TCAS computer, M1485.

These are the tasks:

TCAS Computer Removal, AMM TASK 34-45-01-000-801,
TCAS Computer Installation, AMM TASK 34-45-01-400-801.
- (a) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - 1) If the operational test is satisfactory, then you corrected the fault.

G. Fault Isolation Procedure - Both ATCs

NOTE: You must do the steps in the Initial Evaluation before you can do these steps.

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the TCAS system test does not start when you do the TCAS BITE test, then do these steps:
 - 1) Replace the TCAS computer, M1485.

These are the tasks:

TCAS Computer Removal, AMM TASK 34-45-01-000-801,
TCAS Computer Installation, AMM TASK 34-45-01-400-801.
 - 2) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - a) If the operational test is satisfactory, then you corrected the fault.
 - (b) If the TCAS system test starts when you do the TCAS BITE test, then continue.
- (2) Replace the ATC control panel, P8-29.

These are the tasks:

ATC Control Panel Removal, AMM TASK 34-53-03-000-801,
ATC Control Panel Installation, AMM TASK 34-53-03-400-801.

 - (a) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - 1) If the operational test is satisfactory, then you corrected the fault.

———— **END OF TASK** ————

820. TCAS Intruder Symbols Show on the Ground - Fault Isolation

A. Description

- (1) The TCAS computer uses an air/ground discrete to prevent the TCAS intruder symbols from showing when the airplane is on the ground. The air/ground discrete comes from the proximity switch electronics unit (PSEU).

B. Possible Causes

- (1) Wiring.
- (2) Proximity switch electronics unit.
- (3) TCAS computer, M1485.

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C. Related Data

- (1) (SSM 34-45-11).
- (2) (WDM 34-45-11).

D. Initial Evaluation

- (1) If the TCAS intruder symbols do not show with the airplane in the ground mode, then there was an intermittent fault.
- (2) If the TCAS intruder symbols show with the airplane in the ground mode, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

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- (1) Do this check of the PSEU:
 - (a) Do this task: Proximity Switch Electronics Unit (PSEU) BITE Procedure, 32-09 TASK 801.
 - (b) If the PSEU BITE shows any PSEU internal faults, then replace the PSEU, M2061.
These are the tasks:
Proximity Switch Electronics Unit (PSEU) Removal, AMM TASK 32-09-10-000-801,
Proximity Switch Electronics Unit (PSEU) Installation, AMM TASK 32-09-10-400-801.
 - 1) If the TCAS intruder symbols do not show with the airplane in the ground mode, then you corrected the fault.
 - (c) If the PSEU BITE does not show any PSEU internal faults, then continue.
- (2) Do this check of the wiring:
 - (a) Remove the TCAS computer, M1485. To remove it, do this task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
 - (b) Disconnect connector D11138 from the PSEU.
 - (c) Do a check of the wiring between these pins at connector D2743E for the TCAS computer and connector D11138 at the PSEU:

D2743E	D11138
pin K5	pin 47
 - (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-connect connector D11138 to the PSEU.
 - 3) Re-install the TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
 - 4) If the TCAS intruder symbols do not show with the airplane in the ground mode, then you corrected the fault.
 - (e) If you do not find a problem with the wiring, then do this step and continue:
 - 1) Re-connect connector D11138 to the PSEU.
- (3) Install a new TCAS computer, M1485. to install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.

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- (a) If the TCAS intruder symbols do not show with the airplane in the ground mode, then you corrected the fault.

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———— **END OF TASK** ————

821. TCAS FAIL - Fault Isolation

A. Description

- (1) This Task is for a TCAS FAIL message.

B. Possible Causes

- (1) The TCAS FAIL message can show for faults that are external to the TCAS computer as well as for faults that are internal to the TCAS computer.
 - (a) These are the faults that can cause the TCAS FAIL message to show and will cause a TCAS maintenance message to show:
 - 1) Left Air Data Inertial Reference Unit (ADIRU) failure or ADIRU bus failure.
 - 2) Top TCAS antenna failure.
 - 3) Bottom TCAS antenna failure.
 - 4) Top ATC antenna.
 - 5) Bottom ATC antenna.
 - 6) ATC transponder failure or ATC bus failure.
 - 7) TCAS computer failure or TCAS bus to the ATC failure.
 - 8) The RA status discrete from the two DEUs are open.
 - 9) A failure of both radio altimeters or a failure of both radio altimeter busses.
 - (b) These are the faults that can cause the TCAS FAIL message to show and will not cause a TCAS maintenance message to show:
 - 1) Air/ground discrete short to ground.
 - (c) These are the faults that can cause a TCAS maintenance message to show and will not cause the TCAS FAIL message to show.
 - 1) A RA status discrete from one of the DEUs is open.

C. Initial Evaluation

- (1) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - (a) If the operational test is satisfactory, then there was an intermittent fault.
 - (b) If the operational test is not satisfactory, then do the Fault Isolation Procedure below.

D. Fault Isolation Procedure

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
 - (a) If the TCAS BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
 - 1) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
 - 2) If the operational test is satisfactory, then you corrected the fault.

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- (b) If the TCAS BITE test does not show a fault, then continue.
- (2) Do a check of the ATC antennas. These are the tasks:
- L Air Traffic Control (ATC) Transponder, Top ATC Antenna Problem - Fault Isolation, 34-53 TASK 806
 - R Air Traffic Control (ATC) Transponder, Top ATC Antenna Problem - Fault Isolation, 34-53 TASK 807
 - L Air Traffic Control (ATC) Transponder, Bottom ATC Antenna Problem - Fault Isolation, 34-53 TASK 808
 - R Air Traffic Control (ATC) Transponder, Bottom ATC Antenna Problem - Fault Isolation, 34-53 TASK 809
- (3) Do this check of the air/ground discrete input to the TCAS computer.
- (a) Do this task: Proximity Switch Electronics Unit (PSEU) BITE Procedure, 32-09 TASK 801.
- 1) If the PSEU BITE shows any PSEU internal faults, then replace the PSEU, M2061.
- These are the tasks:
- Proximity Switch Electronics Unit (PSEU) Removal, AMM TASK 32-09-10-000-801
 - Proximity Switch Electronics Unit (PSEU) Installation, AMM TASK 32-09-10-400-801
- a) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
- b) If the operational test is satisfactory, then you corrected the problem.
- 2) If the PSEU BITE does not show any PSEU internal faults, then continue.
- (b) Do this check of the wiring:
- 1) Remove the TCAS computer, M1485. To remove it, do this task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
- 2) Disconnect connector D11138 from the PSEU.
- 3) Do a check of the wiring between these pins at connector D2743E for the TCAS computer and connector D11138 at the PSEU:
- | D2743E | D11138 |
|---------------|---------------|
| pin K5 | pin 47 |
- 4) If you find a problem with the wiring, then do these steps:
- a) Repair the wiring.
- b) Re-connect connector D11138 to the PSEU.
- c) Re-install the TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.
- d) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.
- e) If the operational test is satisfactory, then you corrected the problem.
- 5) If you do not find a problem with the wiring, then do this step and continue:
- a) Re-connect connector D11138 to the PSEU.
- (4) Do this check of the RA status discretes (WDM 34-45-11):

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP

- (b) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.

- 1) If TCAS FAIL shows on the first officer's display, then the RA 2 status discrete is an open circuit.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (e) Do this task: TCAS - Operational Test, AMM TASK 34-45-00-710-801.

- 1) If TCAS FAIL shows on the captain's display, then the RA 1 status discrete is an open circuit.

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

- (g) If one of the RA status discrettes is an open circuit, then do these steps:

- 1) Replace the applicable DEU, M1808 (DEU 1) or M1809 (DEU 2).

These are the tasks:

- Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
- Display Electronic Unit Installation, AMM TASK 31-62-21-400-801

- a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.

<1> If the maintenance message does not show, then you corrected the problem.

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<2> If the maintenance message shows, then continue.

2) Do this wire check of the applicable RA status discrete:

- a) Remove the applicable DEU, M1808 (DEU 1) or M1809 (DEU 2). To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
- b) Remove the TCAS computer, M1485. To remove it, do this task: TCAS Computer Removal, AMM TASK 34-45-01-000-801.
- c) Do a wire check between these pins for the applicable RA Status discrete (WDM 34-45-11):

	DEU CONNECTOR	TCAS COMPUTER CONNECTOR
RA 1	D3973E (DEU 1) pin D4	D2743E pin C14
RA 2	D3975E (DEU 2) pin D4	D2743E pin E13

d) If you find a problem with the wiring, then do these steps:

<1> Repair the wiring.

<2> Re-install the applicable DEU, M1808 (DEU 1) or M1809 (DEU 2). To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

<3> Re-install the TCAS computer, M1485. To install it, do this task: TCAS Computer Installation, AMM TASK 34-45-01-400-801.

<4> Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.

<a> If the maintenance message does not show, then you corrected the problem.

3) If you do not find a problem with the RA status circuits, then continue.

(5) Replace the TCAS computer, M1485.

These are the tasks:

- TCAS Computer Removal, AMM TASK 34-45-01-000-801
- TCAS Computer Installation, AMM TASK 34-45-01-400-801

(a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.

1) If the maintenance message does not show, then you corrected the problem.

————— **END OF TASK** —————

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823. TCAS Fail in TA/RA Mode and Normal in the TA (only) Mode - Fault Isolation

A. Description

- (1) The TCAS computer calculates the resolution advisory (RA) by communicating with other aircraft TCAS computers. For TCAS computers on different aircraft to communicate, the ATC transponders are used. If the ATC transponder transmission is not good, the TCAS computer will not be able to coordinate with other aircraft TCAS computers. However the TCAS computer can still communicate with other ATC transponders and compute the traffic advisory (TA) only, but will not be able to do resolution advisory (RA).

B. Possible Causes

- (1) ATC 1 transponder M163, or ATC 2 transponder M381.
- (2) ATC top antenna M1046 or ATC bottom antenna M44.
- (3) ATC antenna select coax switches or coax transmission lines.

C. Related Data

- (1) (WDM 34-53-31).

D. Initial Evaluation

- (1) If the condition TA/RA fail and TA (only) is okay condition is present when one ATC transponder is selected and not present when the other ATC transponder is selected, it is likely that the problem exists within that transponder.
- (2) If the TA/RA fail and TA (only) is okay condition is present when either (both) ATC transponders are selected, it is likely that the problem exists with the ATC antennas, ATC coax switches, or cables.

E. Fault Isolation Procedure

- (1) Do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If a fail indication on the ATC shows, resolve it first and repeat the TCAS test.

————— **END OF TASK** —————

828. TCAS, Air Traffic Control (ATC) Panel Problem

A. Description

- (1) This task is for this maintenance message:
 - (a) ATC CTL PANEL

B. Possible Causes

- (1) ATC control panel.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2

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D. Related Data

- (1) WDM 34-45-21, 34-53-11
- (2) WDM 34-53-11, 34-53-21

E. Initial Evaluation

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801
 - (a) If the BITE test is satisfactory, then there was an intermittent fault.
 - (b) If the BITE test is not satisfactory, then do the Fault Isolation Procedure.

F. Fault Isolation Procedure

- (1) Replace the ATC control panel. These are the tasks: ATC Control Panel Removal, AMM TASK 34-53-03-000-801, ATC Control Panel Installation, AMM TASK 34-53-03-400-801.
 - (a) Do the Repair Confirmation.

G. Repair Confirmation

- (1) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801
 - (a) If the maintenance message does not show, then you corrected the fault.

———— **END OF TASK** ————

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801. GPWS BITE Procedure

A. General

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(1) This is a description of the GPWS BITE:

- (a) In this task, you do the BITE procedure at the front of the Ground Proximity Warning Computer (GPWC).
- (b) The GPWC is installed on the E1-1 shelf in the electronic equipment bay.
- (c) A self test switch is on the front panel of the GPWC behind the hinged door.
- (d) There are six levels in the self test. This procedure uses these levels:
 - 1) Level 2 - Current Faults
 - 2) Level 4 - Fault History
- (e) Current faults will show any GPWC internal faults and input signal faults that are currently active.
- (f) Faults history will show any GPWC internal faults and input signal faults from the last 10 flight legs.
- (g) You must use headphones to do the self test. The maintenance messages and test prompts are aural.
- (h) You can also do the self test from the flight compartment. From the flight compartment, you start the self test when you push the SYS TEST switch on the ground proximity module, P3-7.
- (i) You should do the GPWS BITE from the flight compartment if you suspect an aural fault. This will make sure the remote electronics unit and its interface with the ground proximity warning computer are operational.

B. BITE Procedure

(1) Do these steps to find any current faults:

- (a) Look at the Ground Proximity Warning Computer (GPWC) status indicators to find a fault condition.

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EXTERNAL FAULT Light	COMPUTER STATUS Light	CONDITION
off	off	No power to the GPWC
off	green	Normal operation
off	red	GPWC internal fault
amber	off	GPWC internal fault ^{*[1]} and GPWC external fault
amber	green	GPWC external fault

*[1] A program pin parity error can cause the COMPUTER FAIL light to come on red.

- 1) If there is a GPWC internal fault condition, then do this task: GPWC COMPUTER STATUS Indicator - Fault Isolation, 34-46 TASK 864.

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- 2) If the status indicator lights do not show any current faults, then do the steps to find faults in fault history below.
- 3) If there is a no power condition (none of the status indicators are on), then, do this task: GPWC BITE Does Not Operate - Fault Isolation, 34-46 TASK 821.
- 4) If there is a GPWS external fault condition, then continue.

NOTE: You can do the steps that follow from the flight compartment. In the flight compartment, you push the SYS TEST switch on the ground proximity module, P3-7.

- (b) Open the door on the front of the GPWC.
- (c) Connect a headphone, STD-1390 to the HEADPHONES jack on the front of GPWC.
- (d) Push the PRESS TO SELF TEST switch momentarily (less the 2 seconds), wait for the first audio message to start, then push the PRESS TO SELF TEST switch momentarily again. You will hear "CURRENT FAULTS".
- (e) Listen for any faults.

NOTE: Faults that you hear are referred to as maintenance messages. You will hear "PRESS TO CONTINUE" after the last maintenance message.

- 1) If you hear maintenance messages, then do these steps:
 - a) Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message.
 - b) Disconnect the headphone, STD-1390 from the HEADPHONES jack on the front of GPWC.
 - c) Close the door on the front of the GPWC.
- 2) If you hear "NO FAULTS", then there are no current faults.

NOTE: Messages that are identified following "NO FAULTS" are EGPWS system status information type messages, where no maintenance action is required. These messages, such as "TERRAIN AWARENESS POSITION ERROR" and "TERRAIN CLEARANCE FLOOR POSITION ERROR", are intended to advise that the data is NCD (no current data) or invalid. This does not mean that there is a problem with the data source, or the system interface, unless a related "GPWS INTERNAL FAULTS" or "GPWS EXTERNAL FAULTS" message is also announced.

- (2) Do these steps to find faults in fault history:
 - (a) Make sure a headphone, STD-1390 is connected to the HEADPHONES jack on the front of GPWC.
 - (b) Push the PRESS TO SELF TEST switch momentarily (less the 2 seconds) again and again until you hear "SYSTEM CONFIGURATION".

NOTE: Wait until the audio message starts each time you push the PRESS TO SELF TEST switch.
 - (c) When you hear "SYSTEM CONFIGURATION", push the PRESS TO SELF TEST switch for more than 2 seconds to end the level 3 test. You will hear "PRESS TO CONTINUE".
 - (d) Push the PRESS TO SELF TEST switch momentarily (less the 2 seconds). You will hear "FAULT HISTORY".

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- (e) Listen for any faults.

NOTE: Faults that you hear are referred to as maintenance messages. You will hear "PRESS TO CONTINUE" after the last maintenance message.

NOTE: Maintenance messages in fault history are grouped by flight leg. You will hear the maintenance messages for the most recent flight legs first. You will hear "FLIGHT X" ("X" being the flight leg number) before you hear the maintenance messages for that flight leg.

- 1) Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message.
- 2) Disconnect the headphone, STD-1390 from the HEADPHONES jack on the front of GPWC.
- 3) Close the door on the front of the GPWC.

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LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
GROUND PROX	AIR DATA BUS 1 BAROMETRIC ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 1 BAROMETRIC RATE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 1 COMPUTED AIRSPEED FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 1 CORRECTED ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 1 INACTIVE	34-46 TASK 822
GROUND PROX	AIR DATA BUS 1 QNH CORRECTED ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 1 STATIC AIR TEMPERATURE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 1 TRUE AIRSPEED FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 BAROMETRIC ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 BAROMETRIC RATE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 COMPUTED AIRSPEED FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 CORRECTED ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 INACTIVE	34-46 TASK 823
GROUND PROX	AIR DATA BUS 2 QNH CORRECTED ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 STATIC AIR TEMPERATURE FAULT	34-46 TASK 840
GROUND PROX	AIR DATA BUS 2 TRUE AIRSPEED FAULT	34-46 TASK 840
GROUND PROX	AIR/GROUND INVALID	34-46 TASK 839
GROUND PROX	AIRCRAFT TYPE INVALID	34-46 TASK 855
GROUND PROX	APPLICATION DATABASE FAILED	34-46 TASK 854
GROUND PROX	ARINC-429 RECEIVER FAILED	34-46 TASK 854
GROUND PROX	ARINC-429 TRANSMITTER FAILED	34-46 TASK 854
GROUND PROX	AUDIO MENU INVALID	34-46 TASK 855
GROUND PROX	CALLOUTS OPTION INVALID	34-46 TASK 855

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LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
GROUND PROX	CONFIGURATION DATABASE FAILED	34-46 TASK 854
GROUND PROX	EFIS BUS 1 DECISION HEIGHT FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 1 DISCRETE WORD 1 FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 1 DISCRETE WORD 2 LEFT FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 1 DISCRETE WORD 2 RIGHT FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 1 INACTIVE	34-46 TASK 826
GROUND PROX	EFIS BUS 1 LANDING ALTITUDE FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 1 MINIMUM DECENT ALTITUDE FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 2 DECISION HEIGHT FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 2 DISCRETE WORD 1 FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 2 DISCRETE WORD 2 LEFT FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 2 DISCRETE WORD 2 RIGHT FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 2 INACTIVE	34-46 TASK 826
GROUND PROX	EFIS BUS 2 LANDING ALTITUDE FAULT	34-46 TASK 845
GROUND PROX	EFIS BUS 2 MINIMUM DECENT ALTITUDE FAULT	34-46 TASK 845
GROUND PROX	ENVELOPE MODULATION DATABASE FAILED	34-46 TASK 854
GROUND PROX	EXCESSIVE WATCHDOG TIMEOUTS FAILURE	34-46 TASK 854
GROUND PROX	FLAP SWITCH FAULT	34-46 TASK 838
GROUND PROX	FLASH FILE SYSTEM WRITE FAILED	34-46 TASK 854
GROUND PROX	FMC BUS 1 INACTIVE	34-46 TASK 828
GROUND PROX	FMC BUS 1 LATITUDE FAULT	34-46 TASK 841
GROUND PROX	FMC BUS 1 LONGITUDE FAULT	34-46 TASK 841
GROUND PROX	FMC BUS 1 MAGNETIC TRACK FAULT	34-46 TASK 841
GROUND PROX	FMC BUS 1 RNP FAULT	34-46 TASK 841
GROUND PROX	GEAR SWITCH FAULT	34-46 TASK 837
GROUND PROX	GLIDESLOPE CANCEL INVALID	34-46 TASK 848
GROUND PROX	GPS BUS 1 ALTITUDE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 DATE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 GROUND SPEED FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 HDOP FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 HFOM FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 HORIZONTAL INTEGRITY LIMIT FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 INACTIVE	34-46 TASK 830
GROUND PROX	GPS BUS 1 LATITUDE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 LATITUDE FINE FAULT	34-46 TASK 842

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GROUND PROX	GPS BUS 1 LONGITUDE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 LONGITUDE FINE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 SENSOR STATUS FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 TRUE TRACK FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 UTC FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 VDOP FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 VERTICAL VELOCITY FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 1 VFOM FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 ALTITUDE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 DATE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 GROUND SPEED FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 HDOP FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 HFOM FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 HORIZONTAL INTEGRITY LIMIT FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 INACTIVE	34-46 TASK 830
GROUND PROX	GPS BUS 2 LATITUDE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 LATITUDE FINE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 LONGITUDE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 LONGITUDE FINE FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 SENSOR STATUS FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 TRUE TRACK FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 UTC FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 VDOP FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 VERTICAL VELOCITY FAULT	34-46 TASK 842
GROUND PROX	GPS BUS 2 VFOM FAULT	34-46 TASK 842
GROUND PROX	ILS BUS 1 GLIDESLOPE FAULT	34-46 TASK 842
GROUND PROX	ILS BUS 1 INACTIVE	34-46 TASK 829
GROUND PROX	ILS BUS 1 LOCALIZER FAULT	34-46 TASK 842
GROUND PROX	ILS BUS 2 GLIDESLOPE FAULT	34-46 TASK 842
GROUND PROX	ILS BUS 2 INACTIVE	34-46 TASK 829
GROUND PROX	IRS BUS 1 ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 GROUND SPEED FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 INACTIVE	34-46 TASK 824
GROUND PROX	IRS BUS 1 INERTIAL VERTICAL ACCELERATION FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 LATITUDE FAULT	34-46 TASK 840

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LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
GROUND PROX	IRS BUS 1 LONGITUDE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 LONGITUDINAL ACCELERATION FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 MAGNETIC TRACK FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 MODE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 NORMAL ACCELERATION FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 PITCH ANGLE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 PITCH RATE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 ROLL ANGLE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 TRUE HEADING FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 TRUE TRACK FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 1 VERTICAL SPEED FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 ALTITUDE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 GROUND SPEED FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 INACTIVE	34-46 TASK 824
GROUND PROX	IRS BUS 2 INERTIAL VERTICAL ACCELERATION FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 LATITUDE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 LONGITUDE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 LONGITUDINAL ACCELERATION FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 MAGNETIC TRACK FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 MODE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 NORMAL ACCELERATION FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 PITCH ANGLE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 PITCH RATE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 ROLL ANGLE FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 TRUE HEADING FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 TRUE TRACK FAULT	34-46 TASK 840
GROUND PROX	IRS BUS 2 VERTICAL SPEED FAULT	34-46 TASK 840
GROUND PROX	MCP BUS INACTIVE	34-46 TASK 833
GROUND PROX	MCP BUS SELECTED COURSE FAULT	34-46 TASK 846
GROUND PROX	NVM FAILED	34-46 TASK 854
GROUND PROX	NVM RAM FAILED	34-46 TASK 854
GROUND PROX	PROGRAM PIN 11 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN 12 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN 14 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN 15 INVALID	34-46 TASK 855

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GROUND PROX	PROGRAM PIN 16 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN 17 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN 9 INVALID	34-46 TASK 855
GROUND PROX	PROGRAM PIN PARITY ERROR	34-46 TASK 855
GROUND PROX	PROGRAM PIN READ ERROR	34-46 TASK 855
GROUND PROX	RADIO ALTIMETER BUS 1 INACTIVE	34-46 TASK 832
GROUND PROX	RADIO ALTIMETER BUS 1 RADIO ALTITUDE FAULT	34-46 TASK 847
GROUND PROX	RADIO ALTIMETER BUS 2 INACTIVE	34-46 TASK 832
GROUND PROX	RADIO ALTIMETER BUS 2 RADIO ALTITUDE FAULT	34-46 TASK 847
GROUND PROX	RAM FAILED	34-46 TASK 854
GROUND PROX	ROM FAILED	34-46 TASK 854
GROUND PROX	SELF TEST INVALID	34-46 TASK 850
GROUND PROX	SMYD BUS 1 CORRECTED ANGLE OF ATTACK FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 1 FLAP ANGLE FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 1 INACTIVE	34-46 TASK 827
GROUND PROX	SMYD BUS 1 INDICATED ANGLE OF ATTACK FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 1 MINIMUM OPERATING SPEED FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 1 STICK SHAKER ANGLE OF ATTACK FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 2 CORRECTED ANGLE OF ATTACK FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 2 FLAP ANGLE FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 2 INACTIVE	34-46 TASK 827
GROUND PROX	SMYD BUS 2 INDICATED ANGLE OF ATTACK FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 2 MINIMUM OPERATING SPEED FAULT	34-46 TASK 843
GROUND PROX	SMYD BUS 2 STICK SHAKER ANGLE OF ATTACK FAULT	34-46 TASK 843
GROUND PROX	SOFTWARE CRC FAILED	34-46 TASK 854
GROUND PROX	SUPPORT TASK FAILED	34-46 TASK 854
GROUND PROX	SYSTEM OR MODE TASK FAILED	34-46 TASK 854
GROUND PROX	TERRAIN DATABASE FAILED	34-46 TASK 854
GROUND PROX	TERRAIN INHIBIT INVALID	34-46 TASK 851
GROUND PROX	TERRAIN RELAY 1 FAULT	34-46 TASK 852
GROUND PROX	TERRAIN RELAY 2 FAULT	34-46 TASK 852
GROUND PROX	VOICE GENERATOR FAILED	34-46 TASK 854
GROUND PROX	WATCHDOG TIMER TEST FAILED	34-46 TASK 854
GROUND PROX	WEATHER RADAR HAZARD BUS 1 INACTIVE	34-46 TASK 834
GROUND PROX	WEATHER RADAR HAZARD BUS 1 STATUS WORD FAULT	34-46 TASK 844

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————— END OF TASK —————

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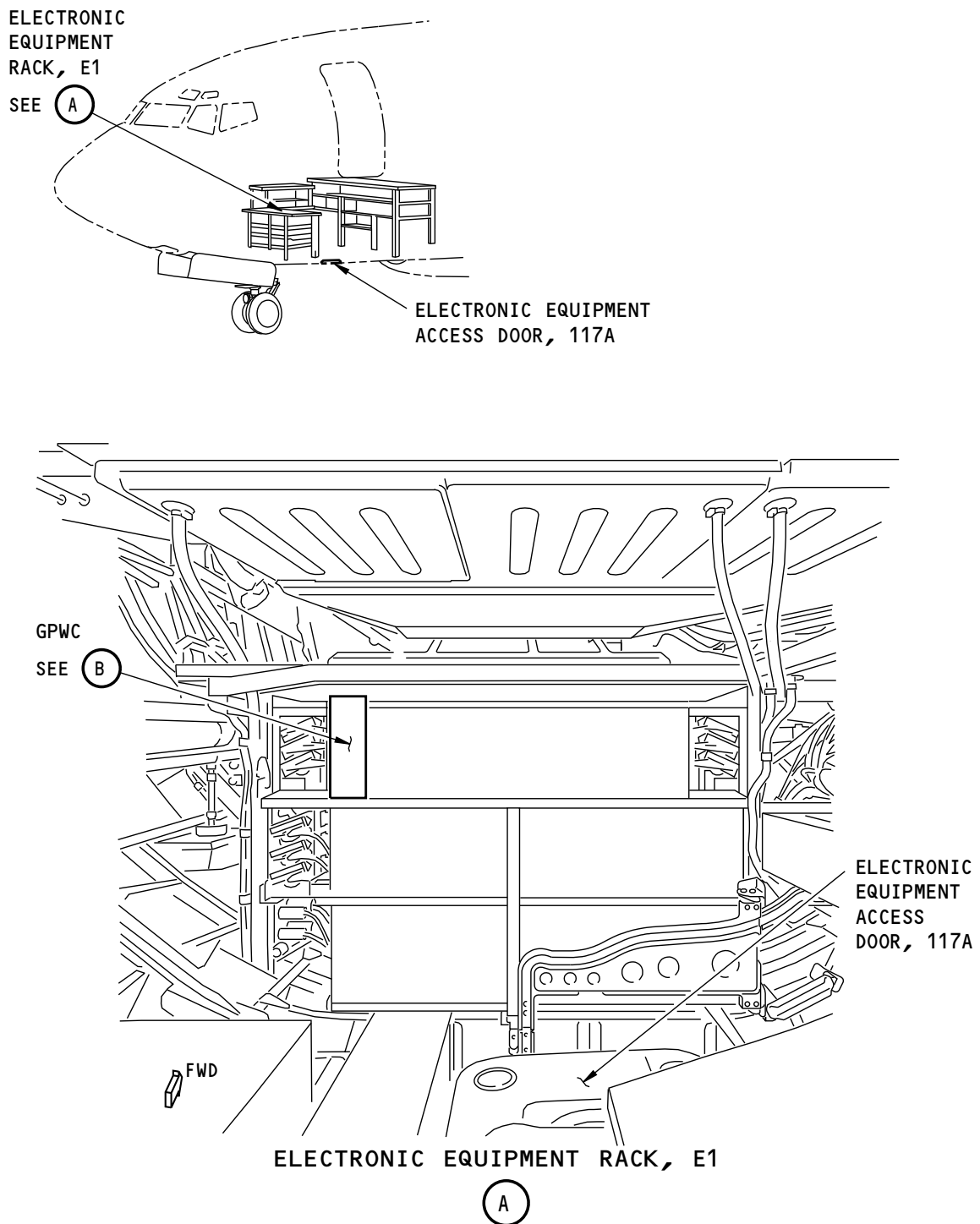
ECCN 9E991 BOEING PROPRIETARY - See title page for details

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G77935 S0000147100_V1

Ground Proximity Warning Computer Location
Figure 201/34-46-00-990-814 (Sheet 1 of 2)

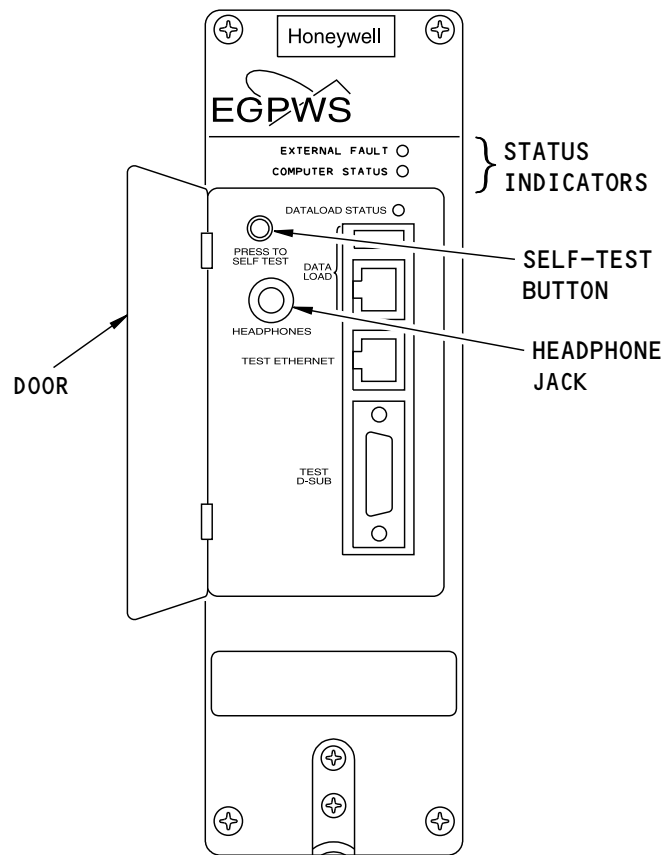
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GROUND PROXIMITY WARNING COMPUTER

(B)

2306862 S0000523991_V1

Ground Proximity Warning Computer Location
Figure 201/34-46-00-990-814 (Sheet 2 of 2)

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821. GPWC BITE Does Not Operate - Fault Isolation

A. Description

- (1) The GPWC does not respond when you start the BITE test from the GPWC front panel.

B. Possible Causes

- (1) Ground proximity warning computer (GPWC), M652.
(2) Wiring.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00629	GND PROX WARN

D. Related Data

- (1) (SSM 34-49-11).
(2) (WDM 34-49-11).

E. Initial Evaluation

- (1) Open and close this circuit breaker:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00629	GND PROX WARN

- (2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
(a) If the GPWS BITE operates correctly, then there was an intermittent fault.
(b) If the GPWS BITE does not operate, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this check for 115 VAC at the GPWC:
(a) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
(b) Do a check for 115 VAC between pin 2 and pin 3 (ground) of connector D1153C for the GPWC.
(c) If there is not 115 VAC between pin 2 and pin 3 of D1153C, then do these steps:

- 1) Do a check for an open circuit between these pins of connector D1153C for the GPWC and the GROUND PROX WARNING circuit breaker, C629:

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.

D1153C	C629
pin 2	term L

- 2) Make sure pin 3 of D1153C goes to ground.
3) Repair the wiring problem that you find.

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- 4) Re-install the the GPWC, M652. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- 5) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - a) If the GPWC BITE operates correctly, then you corrected the fault.
- (d) If there is 115 VAC between pin 2 and pin 3 of D1153C, then continue.
- (2) Install a new ground proximity warning computer (GPWC), M652. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If the GPWC BITE operates correctly, then you corrected the fault.

————— **END OF TASK** —————

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822. Air Data Bus 1 to GPWS Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) AIR DATA BUS 1 INACTIVE
- (2) The data from the ADIRU ARINC 429 air data bus 1 is stopped. Bus 1 has air data from the left ADIRU.

B. Possible Causes

- (1) Left air data inertial reference unit (ADIRU), M1749.
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 301).
- (2) (SSM 34-21-14).
- (3) (SSM 34-49-11).
- (4) (WDM 34-21-14).
- (5) (WDM 34-49-11).

D. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) For the left ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the ADIRS BITE test shows an ADIRU internal fault in CURRENT STATUS, then do these steps:
 - 1) Replace the left ADIRU, M1749.

These are the tasks:

Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801,

Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.

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- 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - a) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - (b) If the ADIRS BITE test does not show an ADIRU internal fault in CURRENT STATUS, then continue.
 - (2) Do a check for this bus fault at another component.

NOTE: This check looks for the same fault on another component. If the fault shows on another component, then the fault is not in the GPWC.

 - (a) Do this task: Flap/Slat Electronics Unit (FSEU) BITE Procedure, 27-51 TASK 801.
 - (b) If the FSEU BITE test does not show an air data fault in EXISTING FAULTS, then do these steps:
 - 1) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:
Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 3) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - 4) If you hear the maintenance message in Current Faults, then do these steps:
 - a) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - b) Do a check of the wiring at the E1-1 shelf between these pins of connector D1153B for the GPWC and terminal block TB1110 (WDM 34-21-14):

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.
D1153B	TB1110
pin A11	term YA21
pin B11	term YB21
- c) Repair the wiring problem that you find.
 - d) Re-install the the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - f) If you do not hear the maintenance message in Current Status, then you corrected the fault.
- (c) If the FSEU BITE test shows an air data fault in EXISTING FAULTS, then continue.

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- (3) Do this check of the wiring:

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.

- (a) Remove the left ADIRU, M1749. To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
- (b) Do a wiring check between these pins of connector D3687A for the ADIRU and terminal block TB1110 at the E1-1 shelf (WDM 34-21-14):

D3687A	TB1110
pin A9	term YA21
pin B9	term YB21

- (c) Repair the wiring problem that you find.
- (d) Re-install the left ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
- 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

———— **END OF TASK** ————

823. Air Data Bus 2 to GPWS Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
- (a) AIR DATA BUS 2 INACTIVE
- (2) The data from the ADIRU ARINC 429 air data bus 2 is stopped. Bus 2 has air data from the right ADIRU.

B. Possible Causes

- (1) Right air data inertial reference unit (ADIRU), M1752.
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 301).
- (2) (SSM 34-21-24).
- (3) (SSM 34-49-11).
- (4) (WDM 34-21-24).
- (5) (WDM 34-49-11).

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D. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) For the right ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the ADIRS BITE test shows an ADIRU internal fault in CURRENT STATUS, then do these steps:
 - 1) Replace the right ADIRU, M1752.

These are the tasks:
Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801,
Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - a) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - (b) If the ADIRS BITE test does not show an ADIRU internal fault in CURRENT STATUS, then continue.
- (2) Do a check for this bus fault at another component.

NOTE: This check looks for the same fault on another component. If the fault shows on another component, then the fault is not in the GPWC.

 - (a) For SMYD 2, do this task: Stall Management Yaw Damper BITE Procedure, 27-32 TASK 801.
 - (b) If the SMYD BITE test shows an air data fault for SMYD 2 in EXISTING FAULTS, then do these steps:
 - 1) Remove the right ADIRU, M1752. To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - 2) Do a wiring check at the E5-2 shelf between these pins of connector D3693A for the ADIRU and terminal block TB521 (WDM 34-21-24):

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.

D3693A	TB521
pin A9	term ZA21
pin B9	term ZB21
- 3) Repair the wiring problem that you find.
- 4) Re-install the right ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- 5) Do this task: GPWS BITE Procedure, 34-46 TASK 801.

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- a) If you do not hear the maintenance message in Current Status, then you corrected the fault.
- (c) If the SMYD BITE test does not show an air data fault for SMYD 2 in existing faults, then continue:
- (3) Replace the ground proximity warning computer (GPWC), M652.
These are the tasks:
Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
(a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.
 - 2) If you hear the maintenance message in Current Status, then continue.
- (4) Do this check of the wiring:
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.
 - (a) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - (b) Do a wiring check between these pins of connector D1153A for the GPWC and terminal block TB521 at the E5-2 shelf (WDM 34-21-24):

D1153A	TB521
pin C1	term ZA21
pin D1	term ZB21
 - (c) Repair the wiring problem that you find.
 - (d) Re-install the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - (e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

————— **END OF TASK** —————

824. IRS Bus to GPWS Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) IRS BUS 1 INACTIVE
 - (b) IRS BUS 2 INACTIVE
- (2) The data from the ADIRU ARINC 429 air data bus is stopped. Bus 1 has data from the left ADIRU. Bus 2 has data from the right ADIRU.

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B. Possible Causes

- (1) Air data inertial reference unit (ADIRU), M1749 (L ADIRU) or M1752 (R ADIRU).
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 301).
- (2) (SSM 34-21-13).
- (3) (SSM 34-21-23).
- (4) (SSM 34-49-11).
- (5) (WDM 34-21-13).
- (6) (WDM 34-21-23).
- (7) (WDM 34-49-11).

D. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.

NOTE: For a Bus 1 fault, make the L ADIRS selection. For a Bus 2 fault, make the R ADIRS selection.

- (a) If the ADIRS BITE test shows an ADIRU internal fault in CURRENT STATUS, then do these steps:
 - 1) Replace the applicable ADIRU, M1749 (L ADIRU) or M1752 (R ADIRU).
These are the tasks:
Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801,
Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - a) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - (b) If the ADIRS BITE test does not show an ADIRU internal fault in CURRENT STATUS, then continue.
- (2) Do a check for this bus fault at another component.

NOTE: This check looks for the same fault on another component. If the fault shows on another component, then the fault is not in the GPWC.

 - (a) Do this task: Autothrottle BITE Procedure, 22-31 TASK 801.
 - (b) If the Autothrottle BITE test does not show an ADIRU-IR fault in CURRENT STATUS, then do these steps:
 - 1) Replace the ground proximity warning computer (GPWC), M652.

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These are the tasks:

Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

- 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
- 3) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
- 4) If you hear the maintenance message in Current Faults, then do these steps:
 - a) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - b) Do a check of the wiring at the E1-1 shelf between these pins of the connector for the GPWC and the applicable terminal block for the applicable IRS BUS (WDM 34-21-13, WDM 34-21-23):

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.

	GPWC CONNECTOR	TERMINAL BLOCK
BUS 1	D1153B	TB1110
	pin A6	term ZA9
	pin B6	term ZB9
BUS 2	D1153A	TB1109
	pin A5	term ZA9
	pin A6	term ZB9

- c) Repair the wiring problem that you find.
 - d) Re-install the the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - f) If you do not hear the maintenance message in Current Status, then you corrected the fault.
 - (c) If the autothrottle BITE test shows an ADIRU-IR fault in CURRENT STATUS, then continue.
- (3) Do this check of the wiring:

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.

- (a) Remove the applicable ADIRU, M1749 (L ADIRU) or M1752 (R ADIRU). To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (b) Do a wiring check between these pins of the connector for the ADIRU and applicable terminal block at the E1-1 shelf for the applicable IRS BUS (WDM 34-21-13, WDM 34-21-23):

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	ADIRU CONNECTOR	TERMINAL BLOCK
BUS 1	D3687B	TB1110
	pin C10	term ZA9
	pin C11	term ZB9
BUS 2	D3693B	TB1109
	pin C10	term ZA9
	pin C11	term ZB9

- (c) Repair the wiring problem that you find.
- (d) Re-install the ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- (e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

———— **END OF TASK** ————

826. EFIS BUS to GPWS Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) EFIS BUS 1 INACTIVE
 - (b) EFIS BUS 2 INACTIVE
- (2) The data from the DEU ARINC 429 IRS bus is stopped. Bus 1 has data from the DEU 1. Bus 2 has data from the DEU 2.

B. Possible Causes

- (1) Display electronic unit (DEU), M1808 (DEU 1) or M1809 (DEU 2).
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 305).
- (2) (SSM 31-62-15).
- (3) (SSM 31-62-25).
- (4) (SSM 34-49-11).
- (5) (WDM 31-62-15).
- (6) (WDM 31-62-25).
- (7) (WDM 34-49-11).

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D. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) For the applicable DEU, do this task: CDS BITE Procedure, 31-62 TASK 801.

NOTE: For a Bus 1 fault, make the DEU-1 selection. For a Bus 2 fault, make the DEU-2 selection.

- (a) If the CDS BITE test shows a DEU internal fault in CURRENT STATUS, then do these steps:
 - 1) Replace the applicable DEU, M1808 (DEU 1) or M1809 (DEU 2).
These are the tasks:
Display Electronic Unit Removal, AMM TASK 31-62-21-000-801,
Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - a) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - (b) If the CDS BITE test does not show a DEU internal fault in CURRENT STATUS, then continue.
- (2) Do a check for this bus fault at another component.

NOTE: This check looks for the same fault on another component. If the fault shows on another component, then the fault is not in the GPWC.

 - (a) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801.

NOTE: For a Bus 1 fault, make the L ADIRS selection. For a Bus 2 fault, make the R ADIRS selection.
 - (b) If the ADIRS BITE test shows a NO BARO DATA fault in CURRENT STATUS, then do these steps:
 - 1) Remove the applicable DEU, M1808 (DEU 1) or M1809 (DEU 2). To remove it, do this task: Display Unit Removal, AMM TASK 31-62-11-000-801.
 - 2) Do a wiring check at the E3-1 shelf between these pins of the connector for the DEU and the terminal block TB3101 for the applicable EFIS BUS (WDM 31-62-15, WDM 31-62-25):

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	DEU CONNECTOR	TERMINAL BLOCK
BUS 1	D3973B	TB3101
	pin C7	term YA15
	pin D7	term YB15
BUS 2	D3975B	TB3101
	pin C7	term YA91
	pin D7	term YB91

- 3) Repair the wiring problem that you find.
- 4) Re-install the DEU. To install it, do this task: Display Unit Installation, AMM TASK 31-62-11-400-801.
- 5) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - a) If you do not hear the maintenance message in Current Status, then you corrected the fault.
 - (c) If the ADIRS BITE test does not show a NO BARO DATA fault in CURRENT STATUS, then continue:
- (3) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:

Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

 - (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - 2) If you hear the maintenance message in Current Faults, then continue.
- (4) Do this check of the wiring:

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.

 - (a) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - (b) Do a wiring check between these pins of the connector for the GPWC at the E1-1 shelf and terminal block TB3101 at the E3-1 shelf for the applicable EFIS BUS (WDM 31-62-15, WDM 31-62-25):

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	GPWC CONNECTOR	TERMINAL BLOCK
BUS 1	D1153B	TB3101
	pin A10	term YA15
	pin B10	term YB15
BUS 2	D1153A	TB3101
	pin A9	term YA91
	pin B9	term YB91

- (c) Repair the wiring problem that you find.
- (d) Re-install the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Faults, then you corrected the fault.

————— **END OF TASK** —————

827. SMYD Bus to GPWS Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) SMYD BUS 1 INACTIVE
 - (b) SMYD BUS 2 INACTIVE
- (2) The data from the stall management yaw damper (SMYD) ARINC 429 bus is stopped. Bus 1 has data from SMYD 1. Bus 2 has data from SMYD 2.

B. Possible Causes

- (1) Stall management yaw damper computer (SMYD), M1747 (SMYD 1) or M1748 (SMYD 2).
- (2) Ground proximity warning computer (GPWC), M652
- (3) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 304).
- (2) (SSM 27-32-12).
- (3) (SSM 27-32-22).
- (4) (SSM 34-49-11).
- (5) (WDM 27-32-12).
- (6) (WDM 27-32-22).
- (7) (WDM 34-49-11).

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D. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) For the applicable SMYD, do this task: Stall Management Yaw Damper BITE Procedure, 27-32 TASK 801.

NOTE: For a Bus 1 fault, do the BITE test on SMYD 1. For a Bus 2 fault, do the BITE test on SMYD 2.

- (a) If the SMYD BITE test shows a SMYD internal fault in EXISTING FAULTS, then do these steps:
 - 1) Replace the applicable SMYD, M1747 (SMYD 1) or M1748 (SMYD 2).
These are the tasks:
Stall Management Yaw Damper (SMYD) Removal, AMM TASK 27-32-42-000-801,
Stall Management Yaw Damper (SMYD) Installation, AMM TASK 27-32-42-400-801.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 3) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - (b) If the SMYD BITE test does not show a SMYD internal fault in EXISTING FAULTS, then continue.
- (2) Do a check for this bus fault at another component.

NOTE: This check looks for the same fault on another component. If the fault shows on another component, then the fault is not in the GPWC.

- (a) Do this task: Autothrottle BITE Procedure, 22-31 TASK 801.
- (b) If the autothrottle BITE test does not show a SMYD fault in CURRENT STATUS, then do these steps:
 - 1) Replace the ground proximity warning computer (GPWC), M652.
These are the tasks:
Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 3) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - 4) If you hear the maintenance message in Current Faults, then do these steps:
 - a) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.

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- b) Do a check of the wiring at the E1-1 shelf between these pins of the connector for the GPWC and the applicable terminal block for the applicable SMYD BUS (WDM 27-32-12, WDM 27-32-22):

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.

	GPWC CONNECTOR	TERMINAL BLOCK
BUS 1	D1153B	TB1109
	pin C12	term YA5
	pin D12	term YB5
BUS 2	D1153A	TB1110
	pin C9	term YA1
	pin D9	term YB1

- c) Repair the wiring problem that you find.
- d) Re-install the the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
- f) If you do not hear the maintenance message in Current Status, then you corrected the fault.
- (c) If the autothrottle BITE test shows a SMYD fault in CURRENT STATUS, then continue.
- (3) Do this check of the wiring:

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.

- (a) Remove the applicable SMYD, M1747 (SMYD 1) or M1749 (SMYD 2). To remove it, do this task: Stall Management Yaw Damper (SMYD) Removal, AMM TASK 27-32-42-000-801.
- (b) Do a wiring check between these pins of the connector for the SMYD and the applicable terminal block at the E1-1 shelf for the applicable SMYD BUS (WDM 27-32-12, WDM 27-32-22):

	SMYD CONNECTOR	TERMINAL BLOCK
BUS 1	D3683B	TB1109
	pin 94	term YB5
	pin 95	term YA5
BUS 2	D3685B	TB1110
	pin 94	term YB1
	pin 95	term YA1

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- (c) Repair the wiring problem that you find.
- (d) Re-install the SMYD. To install it, do this task: Stall Management Yaw Damper (SMYD) Installation, AMM TASK 27-32-42-400-801.
- (e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

————— **END OF TASK** —————

828. FMC Bus to GPWS Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) FMC BUS 1 INACTIVE
- (2) The data from the FMC ARINC 429 bus is stopped.

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- (3) With the FMC source select switch at NORMAL, the GPWC gets data from the left FMC (FMC 1).

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B. Possible Causes

- (1) Flight management computer system (FMCS).
- (2) FMCS transfer relay No. 1, R475.
- (3) Ground proximity warning computer (GPWC), M652.
- (4) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 306).
- (2) (SSM 34-49-11).
- (3) (SSM 34-61-15).
- (4) (WDM 34-49-11).
- (5) (WDM 34-61-15).

D. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) Make sure the FMCS operation is normal:

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- (a) With the FMC select switch at NORMAL, look for these indications of a failed FMC:
 - 1) FAIL light on the CDU is on.
 - 2) SINGLE FMC OPERATION shows on the CDU.
 - 3) FMC shows in the middle of the CDU display.

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- (b) If there is an FMCS failure, then go to the FIM task for the applicable FMCS observed fault.
- (c) If the FMCS operation is normal, then continue.
- (2) Do this check of the FMCS transfer relay No. 1:
 - (a) Disconnect connectors D3263 and D3267 from the FMCS transfer relay No. 1, R475.
NOTE: R475 is on the E5-2 shelf in the electronic equipment bay.
 - (b) Do a continuity check between these pins on the FMCS transfer relay No. 1, R475:

D3263		D3267
pin R	.....	pin R
pin S	.....	pin S
 - (c) If there is not continuity between the pins, then do these steps:
 - 1) Replace the FMCS transfer relay No. 1, R475.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - a) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - (d) If there is continuity between the pins, then re-connect connectors D3263 and D3267 to the FMCS transfer relay No. 1 and continue.
- (3) Replace the ground proximity warning computer (GPWC), M652.
These are the tasks:
Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - 2) If you hear the maintenance message in Current Faults, then continue.
- (4) Do this check of the wiring between the GPWC and the FMCS transfer relay no. 1:
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.
 - (a) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - (b) Disconnect connector D3263 from the FMCS transfer relay no. 1, R475.
NOTE: R475 is on the E5-2 shelf in the electronic equipment bay.

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- (c) Do a wiring check between these pins of connector D1153B for the GPWC and connector D3263 (WDM 34-61-15):

D1153B		D3263
pin C10	.....	pin R
pin D10	.....	pin S

- (d) If you find a problem with the wiring, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- 3) Re-connect connector D3263 to the FMCS transfer relay no. 1, R475.
- 4) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - a) If you do not hear the maintenance message in Current Status, then you corrected the fault.

- (e) If you do not find a problem with the wiring, then do these steps and continue:

- 1) Re-install the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- 2) Re-connect connector D3263 to the FMCS transfer relay no. 1, R475.

- (5) Do this check of the wiring at the E5-2 shelf:

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.

- (a) Remove FMC 1, M1175. To remove it, do this task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.
- (b) Disconnect connector D3267 from the FMCS transfer relay No. 1, R475
- (c) Do a wiring check at the E5-2 shelf between these pins of connector D2179A for the FMC and connector D3267 (WDM 34-61-15):

D2179A		D3267
pin A11	.....	pin R
pin B11	.....	pin S

- (d) Repair the wiring problem that you find.
- (e) Re-install the FMC. To install it, do this task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.
- (f) Re-connect connector D3267 to the FMCS transfer relay No. 1.
- (g) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Faults, then you corrected the fault.

———— **END OF TASK** ————

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829. ILS Bus to GPWS Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) ILS BUS 1 INACTIVE
 - (b) ILS BUS 2 INACTIVE
- (2) The data from the Instrument Landing System (ILS) Aeronautical Radio Incorporated (ARINC) 429 bus 1 (2) is stopped.

B. Possible causes

- (1) Multi-Mode Receiver (MMR) 1 (2), M2104 (M2105).
- (2) Ground Proximity Warning Computer (GPWC), M652.
- (3) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:
These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1
B	7	C00629	GND PROX WARN

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 302).
- (2) (SSM 34-31-11).
- (3) (SSM 34-31-21).
- (4) (SSM 34-49-11).
- (5) (WDM 34-31-11).
- (6) (WDM 34-31-21).
- (7) (WDM 34-49-11).

E. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

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F. Fault Isolation Procedure

(1) For Multimode Receiver (MMR) 1 (2), do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.

(a) If the MMR Built-In-Test Equipment (BITE) test shows an MMR internal fault, then do these steps:

1) Replace MMR 1 (2), M2104 (M2105).

These are the tasks:

ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801,

ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.

2) Do the repair confirmation at the end of this task.

(b) If the MMR BITE test does not show an MMR internal fault, then continue.

(2) Do a check for this bus fault at another component.

NOTE: This check looks for the same fault on another component. If the fault shows on another component, then the fault is not in the GPWC.

(a) Do this task: CDS BITE Procedure, 31-62 TASK 801.

(b) If the Common Display System (CDS) BITE test shows a NO ILS 1 DATA (NO ILS 2 DATA) fault in CURRENT STATUS, then do these steps:

1) Remove MMR 1 (2), M2104 (M2105). To remove it, do this task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.

2) Do a check of the wiring at the E1-2 (E1-4) shelf between these pins of the connector for the MMR and the terminal block for the applicable MMR data bus (WDM 34-31-11, WDM 34-31-21):

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 Line Replaceable Unit (LRU)s that are connected to the bus (use the Wiring Diagram Manual (WDM) to tell which LRUs are on the bus). Then, re-install the LRUs when you are done.

	MMR CONNECTOR	TERMINAL BLOCK
MMR-1 BUS	D10719B	TB1201
	pin G1	term ZA1
	pin H1	term ZB1
MMR-2 BUS	D10721B	TB1403
	pin G1	term ZA9
	pin H1	term ZB9

3) Repair the wiring problem that you find.

4) Re-install MMR 1 (2). To install it, do this task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.

5) Do the repair confirmation at the end of this task.

(c) If the CDS BITE test does not show a NO ILS 1 DATA (NO ILS 2 DATA) fault in CURRENT STATUS, then continue:

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- (3) Replace the GPWC, M652.

These are the tasks:

Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

- (a) Do the repair confirmation at the end of this task.

- (4) Do this check of the wiring:

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.

- (a) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
- (b) Do a check of the wiring between these pins of the connector for the GPWC and the terminal block for the applicable MMR data bus (WDM 34-31-11, WDM 34-31-21):

	GPWC CONNECTOR	TERMINAL BLOCK
MMR-1 BUS	D1153B	TB1201
	pin C11	term ZA1
	pin D11	term ZB1
MMR-2 BUS	D1153A	TB1401
	pin C5	term ZA9
	pin D5	term ZB9

- (c) Repair the wiring problem that you find.
- (d) Re-install the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (e) Do the repair confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
- (a) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
- (b) If you hear the maintenance message in Current Faults, then continue the fault isolation procedure at the subsequent step.

————— END OF TASK —————

830. GPS Bus to GPWS Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
- (a) GPS BUS 1 INACTIVE
- (b) GPS BUS 2 INACTIVE

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- (2) The data from the global positioning system (GPS) ARINC 429 bus is stopped. Bus 1 has data from the multi-mode receiver (MMR) 1. Bus 2 has data from MMR 2.

B. Possible Causes

- (1) Multi-mode receiver (MMR), M2104 (MMR-1) or M2105 (MMR-2).
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 302).
- (2) (SSM 34-49-11).
- (3) (SSM 34-58-11).
- (4) (SSM 34-58-21).
- (5) (WDM 34-49-11).
- (6) (WDM 34-58-11).
- (7) (WDM 34-58-21).

D. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) For the applicable MMR, do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.

NOTE: For a Bus 1 fault, do the BITE test on MMR-1 selection. For a Bus 2 fault, do the BITE test on MMR-2.

- (a) If the MMR BITE test shows an MMR internal fault, then do these steps:

- 1) Replace the applicable MMR, M2104 (MMR-1) or M2105 (MMR-2).

These are the tasks:

ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801,
ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.

- 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.

- a) If you do not hear the maintenance message in Current Faults, then you corrected the fault.

- (b) If the MMR BITE test does not show an MMR internal fault, then continue.

- (2) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:

Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

- (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.

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- 1) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
- 2) If you hear the maintenance message in Current Faults, then continue.
- (3) Do this check of the wiring:

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.

- (a) Remove the applicable MMR, M2104 (MMR-1) or M2105 (MMR-2). To remove it, do this task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.
- (b) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
- (c) Do a wiring check between these pins of the connector for the GPWC at the E1-1 shelf and the connector for the MMR for the applicable GPS BUS (WDM 34-58-11, WDM 34-58-21):

	GPWC CONNECTOR	MMR CONNECTOR
		D10719B (MMR-1)
BUS 1	D1153B	
	pin C6	pin E9
	pin D6	pin F9
BUS 2	D1153A	D10721B (MMR-2)
	pin C11	pin E9
	pin D11	pin F9

- (d) Repair the wiring problem that you find.
- (e) Re-install the MMR. To install it, do this task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
- (f) Re-install the the GPWC, M652. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (g) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Faults, then you corrected the fault.

———— **END OF TASK** ————

832. Radio Altimeter Bus to GPWS Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) RADIO ALTIMETER BUS 1 INACTIVE
 - (b) RADIO ALTIMETER BUS 2 INACTIVE
- (2) The data from the radio altimeter ARINC 429 bus is stopped. Bus 1 has data from radio altimeter transceiver 1. Bus 2 has data from radio altimeter transceiver 2.

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B. Possible Causes

- (1) Radio altimeter receiver/transmitter, M1735 (No. 1) or M1736 (No. 2).
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 303).
- (2) (SSM 34-33-11).
- (3) (SSM 34-33-21).
- (4) (SSM 34-49-11).
- (5) (WDM 34-33-11).
- (6) (WDM 34-33-21).
- (7) (WDM 34-49-11).

D. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) For the applicable radio altimeter receiver/transmitter, do this task: Low Range Radio Altimeter (LRRR) BITE Procedure, 34-33 TASK 801.

NOTE: For a Bus 1 fault, do the BITE test on the No. 1 radio altimeter receiver/transmitter. For a Bus 2 fault, do the BITE test on the No. 2 radio altimeter receiver/transmitter.

- (a) If the LRRR BITE test shows a receiver/transmitter internal fault, then do these steps:
 - 1) Replace the applicable radio altimeter receiver/transmitter, M1735 (No. 1) or M1736 (No. 2).

These are the tasks:
Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801,
Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - a) If you do not hear the maintenance message in Current Faults, then you corrected the fault.

- (b) If the LRRR BITE test does not show a receiver/transmitter internal fault, then continue.

- (2) Do a check for this bus fault at another component.

NOTE: This check looks for the same fault on another component. If the fault shows on another component, then the fault is not in the GPWC.

- (a) Do this task: Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure, 34-45 TASK 801.
- (b) If the TCAS BITE test does not show a radio altimeter fault, then do these steps:

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- 1) Replace the ground proximity warning computer (GPWC), M652.
These are the tasks:
Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
- 3) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
- 4) If you hear the maintenance message in Current Faults, then do these steps:
 - a) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - b) Do a check of the wiring at the E1-1 shelf between these pins of the connector for the GPWC and the applicable terminal block for the applicable RADIO ALTIMETER BUS (WDM 34-33-11, WDM 34-33-21):

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.

	GPWC CONNECTOR	TERMINAL BLOCK
BUS 1	D1153B	TB1108
	pin A13	term YA3
	pin B13	term YB3
BUS 2	D1153A	TB1101
	pin A8	term YA1
	pin B8	term YB1

- c) Repair the wiring problem that you find.
 - d) Re-install the the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - f) If you do not hear the maintenance message in Current Status, then you corrected the fault.
- (c) If the TCAS BITE test shows a radio altimeter fault, then continue.
- (3) Do this check of the wiring:

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.

 - (a) Remove the applicable radio altimeter receiver/transmitter, M1735 (No. 1) or M1736 (No. 2). To remove it, do this task: Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801.

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- (b) Do a wiring check between these pins of the connector for the radio altimeter receiver/transmitter and applicable terminal block at the E1-1 shelf for the applicable RADIO ALTIMETER BUS (WDM 34-33-11, WDM 34-33-21):

	RADIO ALTIMETER CONNECTOR	TERMINAL BLOCK
BUS 1	D3667B	TB1108
	pin G2	term YA3
	pin G3	term YB3
BUS 2	D3669B	TB1101
	pin G2	term YA1
	pin G3	term YB1

- (c) Repair the wiring problem that you find.
- (d) Re-install the radio altimeter receiver/transmitter. To install it, do this task: Low Range Radio Altimeter (LRRR) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
- (e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
- 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

———— **END OF TASK** ————

833. MCP Bus to GPWS Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
- (a) MCP BUS INACTIVE
- (2) The data from the mode control panel (MCP) ARINC 429 bus is stopped.

B. Possible Causes

- (1) DFCS mode control panel (MCP), M198.
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 306).
- (2) (SSM 22-11-51).
- (3) (SSM 34-49-11).
- (4) (WDM 22-11-51).
- (5) (WDM 34-49-11).

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D. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) For the MCP, do this task: LRU Replacement Test, 22-11 TASK 802.
 - (a) If the MCP replacement test shows an MCP internal fault, then do these steps:
 - 1) Replace the DFCS mode control panel, M198.

These are the tasks:
DFCS Mode Control Panel Removal, AMM TASK 22-11-34-000-801,
DFCS Mode Control Panel Installation, AMM TASK 22-11-34-400-801.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - a) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - (b) If the MCP replacement test does not show an MCP internal fault, then continue.
 - (2) Do a check for this bus fault at another component.

NOTE: This check looks for the same fault on another component. If the fault shows on another component, then the fault is not in the GPWC.

 - (a) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (b) If the CDS BITE test does not show a NO MCP DATA fault in CURRENT STATUS, then do these steps:
 - 1) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:
Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 3) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - 4) If you hear the maintenance message in Current Faults, then do these steps:
 - a) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - b) Do a check of the wiring at the E1-1 shelf between these pins of connector D1153B for the GPWC and terminal block TB1110 (WDM 22-11-51):

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.

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D1153B	TB1110
pin A12	term ZA17
pin B12	term ZB17

- c) Repair the wiring problem that you find.
 - d) Re-install the the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - f) If you do not hear the maintenance message in Current Status, then you corrected the fault.
- (c) If the CDS BITE test shows a NO MCP DATA fault in CURRENT STATUS, then continue.
- (3) Do this check of the wiring:

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.

- (a) Remove the MCP, M198. To remove it, do this task: DFCS Mode Control Panel Removal, AMM TASK 22-11-34-000-801.
- (b) Do a wiring check between these pins of connector D299 at the glareshield and terminal block TB1110 at the E1-1 shelf (WDM 22-11-51):

D299	TB1110
pin 17	term ZB17
pin 18	term ZA17

- (c) Repair the wiring problem that you find.
- (d) Re-install the MCP. To install it, do this task: DFCS Mode Control Panel Installation, AMM TASK 22-11-34-400-801.
- (e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

———— **END OF TASK** ————

834. Weather Radar Hazard Bus to GPWS Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) WEATHER RADAR HAZARD 1 BUS INACTIVE
- (2) The data from the weather radar receiver/transmitter ARINC 429 bus is stopped.

B. Possible Causes

- (1) Weather radar receiver/transmitter, M101.
- (2) Ground proximity warning computer (GPWC), M652
- (3) Wiring.

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C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 306).
- (2) (SSM 34-49-11).
- (3) (WDM 34-49-11).

D. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) Do this check of the weather radar receiver/transmitter:
 - (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - 1) If the operational test is not satisfactory, then go to the fault isolation task for the problem that you find to correct the fault.
 - a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - b) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
 - 2) If the operational test is satisfactory, then continue.
 - (2) Do this check of the wiring:

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.

 - (a) Remove the weather radar receiver/transmitter, M101. To remove it, do this task: Weather Radar Receiver/Transmitter Removal, AMM TASK 34-43-41-000-801.
 - (b) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - (c) Do a wiring check between these pins of connector D189B for the weather radar receiver/transmitter and connector D1153A for the GPWC:

D189B

pin J5 pin C8
pin J6 pin D8

D1153A

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the weather radar receiver/transmitter. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
 - 3) Re-install the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - 4) Do this task: GPWS BITE Procedure, 34-46 TASK 801.

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- a) If you do not hear the maintenance message in Current Status, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then do this step and continue:
 - 1) Re-install the weather radar receiver/transmitter, M101. To install it, do this task: Weather Radar Receiver/Transmitter Installation, AMM TASK 34-43-41-400-801.
- (3) Install a new ground proximity warning computer (GPWC), M652. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Faults, then you corrected the fault.

————— **END OF TASK** —————

SIA ALL; AIRPLANES WITH THE GEAR INHIBIT SWITCH ON THE EGPWS MODULE

837. Landing Gear Inhibit Discrete Signal Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) GEAR SWITCH FAULT
- (2) The discrete signal from the landing gear control lever is not correct.
- (3) You will hear this message during either of these conditions:
 - (a) The discrete signal is grounded and the air/ground logic is set for air mode with an airspeed of more than 290 knots.
 - (b) The discrete signal is open and the air/ground logic is set for ground mode.
 - (c) With the GEAR INHIBIT switch set to INHIBIT, The discrete signal is grounded giving a gear down signal to the GPWC.

B. Possible Causes

- (1) Landing gear lever switch module, M1952.
- (2) GEAR INHIBIT switch (S790) in the GPWS module, P3-7.
- (3) Ground proximity warning computer (GPWC), M652.
- (4) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 308).
- (2) (SSM 32-61-11).
- (3) (SSM 34-49-11).
- (4) (SSM 32-61-11).
- (5) (WDM 34-49-11).

D. Initial Evaluation

- (1) Do this check of the landing gear discrete input:
 - (a) Make sure the GEAR INHIBIT switch on the GPWS module, P3-7, is in the NORM position.

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- (b) Push the GROUND PROXIMITY SYS TEST switch momentarily (less than 2 seconds) again and again until you hear "DISCRETE TEST".



THE GROUND LOCKING PINS MUST BE INSTALLED IN THE LANDING GEAR BEFORE YOU MOVE THE LANDING GEAR LEVER. IF YOU DO NOT, YOU CAN INJURE PEOPLE OR DAMAGE EQUIPMENT.

- (c) Set the landing gear lever to the OFF position.
- (d) Listen for the "LANDING GEAR UP" aural message.
- (e) Move the GEAR INHIBIT switch to INHIBIT.
- (f) Listen for the "LANDING GEAR DOWN" aural message.
- (g) Move the GEAR INHIBIT switch to NORM.
- (h) Listen for the "LANDING GEAR UP" aural message.
- (i) Set the landing gear lever to the DOWN position.
- (j) Listen for the "LANDING GEAR DOWN" aural message.
- (k) If the check of the landing gear discrete input is satisfactory, then there was an intermittent fault.
- (l) If the check of the landing gear discrete input is not satisfactory when you move the GEAR INHIBIT switch, then do the Fault Isolation Procedure - GEAR INHIBIT Switch below.
- (m) If the check of the landing gear discrete input is not satisfactory when you move the landing gear lever, then do the Fault Isolation Procedure - Landing Gear Lever Switch below.
- (n) If the check of the landing gear discrete input does not change when you move the landing gear lever or when you move the GEAR INHIBIT switch, then do the Fault Isolation Procedure - Input Does Not Change below.

E. Fault Isolation Procedure - Landing Gear Lever Switch

NOTE: You must do the steps in the Initial Evaluation before you can do these steps:

- (1) Do this check of the landing gear lever switch module:
- (a) Do this task: Proximity Switch Electronics Unit (PSEU) BITE Procedure, 32-09 TASK 801.
- (b) If the PSEU BITE test shows a lever up or lever down fault, then do these steps:
- 1) Replace the landing gear control lever module, M1952.
- These are the tasks:
- Landing Gear Control Lever Module Removal, AMM TASK 32-31-11-020-801,
Landing Gear Control Lever Module Installation, AMM TASK 32-31-11-400-801.
- 2) Do the Repair Confirmation at the end of this task.
- (c) If the PSEU BITE test does not show a lever up or lever down fault, then continue.
- (2) Replace the GPWS module, P3-7.
- These are the tasks:
- Ground Proximity Warning Module Removal, AMM TASK 34-46-02-000-801,
Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.

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- (a) Do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then continue.
- (3) Do this check of the wiring at the first officer's instrument panel, P3:
 - (a) Remove the GPWS module, P3-7. To remove it, do this task: Ground Proximity Warning Module Removal, AMM TASK 34-46-02-000-801.
 - (b) Do a wiring check at the first officer's instrument panel, P3, between these pins of connector D1205 for the GPWS module and terminal block TB201 (WDM 34-49-11):

D1205	TB201
pin 9	term ZA1

- (c) Repair the wiring problem that you find.
- (d) Re-install the GPWS module, P3-7. To install it, do this task: Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.
- (e) Do the Repair Confirmation at the end of this task.

F. Fault Isolation Procedure - GEAR INHIBIT Switch

NOTE: You must do the steps in the Initial Evaluation before you can do these steps:

- (1) Replace the GPWS module, P3-7.

These are the tasks:

Ground Proximity Warning Module Removal, AMM TASK 34-46-02-000-801,
Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.

- (a) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - Input Does Not Change

NOTE: You must do the steps in the Initial Evaluation before you can do these steps:

- (1) Do this check of the wiring between the GPWS module and the GPWC:
 - (a) Remove the GPWS module, P3-7. To remove it, do this task: Ground Proximity Warning Module Removal, AMM TASK 34-46-02-000-801.
 - (b) Remove the ground proximity warning computer (GPWC), M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - (c) Do a wiring check between these pins of connector D1153B for the GPWC and connector D1205 for the GPWS module (WDM 34-49-11):

D1153B	D1205
pin B9	pin 8

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - 3) Re-install the GPWS module, P3-7. To install it, do this task: Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.
 - 4) Do the Repair Confirmation at the end of this task.

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- (e) If you do not find a problem with the wiring, then do this step and continue.
 - 1) Re-install the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (2) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:

Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

 - (a) Do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then continue.
- (3) Install a new GPWS module, P3-7. To install it, do this task: Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.
 - (a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this check of the landing gear discrete input:
 - (a) Make sure the GEAR INHIBIT switch on the GPWS module, P3-7, is in the NORM position.
 - (b) Push the GROUND PROXIMITY SYS TEST switch momentarily (less than 2 seconds) again and again until you hear "DISCRETE TEST".



WARNING

THE GROUND LOCKING PINS MUST BE INSTALLED IN THE LANDING GEAR BEFORE YOU MOVE THE LANDING GEAR LEVER. IF YOU DO NOT, YOU CAN INJURE PEOPLE OR DAMAGE EQUIPMENT.

- (c) Set the landing gear lever to the OFF position.
- (d) Listen for the "LANDING GEAR UP" aural message.
- (e) Move the GEAR INHIBIT switch to INHIBIT.
- (f) Listen for the "LANDING GEAR DOWN" aural message.
- (g) Move the GEAR INHIBIT switch to NORM.
- (h) Listen for the "LANDING GEAR UP" aural message.
- (i) Set the landing gear lever to the DOWN position.
- (j) Listen for the "LANDING GEAR DOWN" aural message.
- (k) If the check of the landing gear discrete input is satisfactory, then you corrected the fault.

————— END OF TASK —————

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838. Flap Position Discrete Signal Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) FLAP SWITCH FAULT
- (2) This message will show for one of these conditions:

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- (a) The altitude is more than 50 feet, the airspeed is more than 250 knots, and the flap signal is for flaps down.
- (b) The altitude is between 100 and 50 feet on approach and the flap signal is for flaps up.

B. Possible Causes

- (1) FLAP INHIBIT switch (S658) in the GPWS module, P3-7.
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 308).
- (2) (SSM 34-49-11).
- (3) (WDM 34-49-11).

D. Initial Evaluation

- (1) Do this check of the flap inhibit discrete input:
 - (a) Make sure the FLAP INHIBIT switch on the GPWS module, P3-7, is in the NORM position.
 - (b) Push the GROUND PROXIMITY SYS TEST switch momentarily (less than 2 seconds) again and again until you hear "DISCRETE TEST".
 - (c) Move the FLAP INHIBIT switch to INHIBIT.
 - (d) Listen for the "LANDING FLAPS" aural message.
 - (e) Move the FLAP INHIBIT switch to NORM.
 - (f) Listen for the "NOT LANDING FLAPS" aural message.
 - (g) If the check of the flap inhibit discrete input is satisfactory, then there was an intermittent fault.
 - (h) If the check of the flap inhibit discrete input is not satisfactory, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) Do this check of the FLAP INHIBIT switch on the GPWS module, P3-7:
 - (a) Remove the GPWS module, P3-7. To remove it, do this task: Ground Proximity Warning Module Removal, AMM TASK 34-46-02-000-801.
 - (b) Make sure the FLAP INHIBIT switch is in the NORMAL position.
 - (c) Do a continuity check between pin 5 and pin 6 on the GPWS module.
 - (d) If there is not continuity between pin 5 and pin 6 on the GPWS module, then do these steps:
 - 1) Install a new GPWS module, P3-7. To install it, do this task: Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.
 - 2) Do the Repair Confirmation at the end of this task.
 - (e) If there is continuity between pin 5 and pin 6 on the GPWS module, then do this step and continue:
 - 1) Re-install the GPWS module, P3-7. To install it, do this task: Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.

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- (2) Replace the ground proximity warning computer (GPWC), M652.
These are the tasks:
Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (a) Do the Repair Confirmation at the end of this task.
1) If the Repair Confirmation is not satisfactory, then continue.
- (3) Do this check of the wiring:
- (a) Remove the ground proximity module P3-7, from the P3 first officer's instrument panel. To remove it, do this task: Ground Proximity Warning Module Removal, AMM TASK 34-46-02-000-801.
- (b) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
- (c) Do a wiring check between these pins of connector D1205 for the GPWS module and connector D1153B for the GPWC:
- | D1205 | D1153B |
|-----------------|---------------|
| pin 5 | pin C9 |
- (d) Make sure pin 6 of connector D1205 goes to ground.
- (e) Repair the wiring problem that you find.
- (f) Re-install the ground proximity module P3-7. To install it, do this task: Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.
- (g) Re-install the GPWC, M652. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (h) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this check of the flap inhibit discrete input:
- (a) Make sure the FLAP INHIBIT switch on the GPWS module, P3-7, is in the NORM position.
- (b) Push the GROUND PROXIMITY SYS TEST switch momentarily (less than 2 seconds) again and again until you hear "DISCRETE TEST".
- (c) Move the FLAP INHIBIT switch to INHIBIT.
- (d) Listen for the "LANDING FLAPS" aural message.
- (e) Move the FLAP INHIBIT switch to NORM.
- (f) Listen for the "NOT LANDING FLAPS" aural message.
- (g) If the check of the flap inhibit discrete input is satisfactory, then you corrected the fault.

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———— **END OF TASK** ————

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839. Air/Ground Discrete Signal Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) AIR/GROUND INVALID
- (2) The discrete from the ground sensing logic is bad.
- (3) The AIR/GROUND discrete is considered bad if the ground sensing relay is on ground AND the airspeed is more than 290 knots and the airspeed is valid.

B. Possible Causes

- (1) Air/ground input to the PSEU.
- (2) Proximity switch electronics unit (PSEU), M2061.
- (3) Ground proximity warning computer (GPWC), M652.
- (4) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 308).
- (2) (SSM 32-31-11).
- (3) (SSM 34-49-11).
- (4) (WDM 32-31-11).
- (5) (WDM 34-49-11).

D. Initial Evaluation

- (1) Do this check of the air/ground discrete input:
 - (a) Push the GROUND PROXIMITY SYS TEST switch momentarily (less than 2 seconds) again and again until you hear "DISCRETE TEST".
 - (b) For SYS #1, do this task: Put the Airplane in the Air Mode, AMM TASK 32-09-00-860-801.
 - (c) Listen for the "NOT ON GROUND" aural message.
 - (d) Do this task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.
 - (e) Listen for the "ON GROUND" aural message.
 - (f) If the check of the air/ground discrete input is satisfactory, then there was an intermittent fault.
 - (g) If the check of the air/ground discrete input is not satisfactory, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) Do this check of the PSEU:
 - (a) Do this task: Proximity Switch Electronics Unit (PSEU) BITE Procedure, 32-09 TASK 801.
 - 1) If the PSEU BITE test shows a PSEU internal fault or an air/ground fault, then go to the fault isolation task for the applicable PSEU maintenance to correct the fault.
 - a) Do the Repair Confirmation at the end of this task.
 - 2) If the PSEU BITE test does not show a PSEU internal fault or an air/ground fault, then continue:
- (2) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:

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Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

- (a) Do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then continue.
- (3) Do this check of the wiring:
 - (a) Disconnect connector D1142 from the PSEU.
 - (b) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - (c) Do a wiring check panel between these pins of connector D1142 and connector D1153B for the GPWC:

D1142	D1153B
pin 29	pin A1
 - (d) Repair the wiring problem that you find.
 - (e) Reinstall the GPWC, M652. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - (f) Reconnect connector D1142 to the PSEU.
 - (g) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this check of the air/ground discrete input:
 - (a) Push the GROUND PROXIMITY SYS TEST switch momentarily (less than 2 seconds) again and again until you hear "DISCRETE TEST".
 - (b) For SYS #1, do this task: Put the Airplane in the Air Mode, AMM TASK 32-09-00-860-801.
 - (c) Listen for the "NOT ON GROUND" aural message.
 - (d) Do this task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.
 - (e) Listen for the "ON GROUND" aural message.
 - (f) If the check of the air/ground discrete input is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

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840. IRS or AIR DATA ARINC 429 Signal Fault - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) AIR DATA BUS 1 BAROMETRIC ALTITUDE FAULT
 - (b) AIR DATA BUS 1 BAROMETRIC RATE FAULT
 - (c) AIR DATA BUS 1 COMPUTED AIRSPEED FAULT
 - (d) AIR DATA BUS 1 CORRECTED ALTITUDE FAULT
 - (e) AIR DATA BUS 1 QNH CORRECTED ALTITUDE FAULT
 - (f) AIR DATA BUS 1 TRUE AIRSPEED FAULT
 - (g) AIR DATA BUS 1 STATIC AIR TEMPERATURE FAULT
 - (h) AIR DATA BUS 2 BAROMETRIC ALTITUDE FAULT

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- (i) AIR DATA BUS 2 BAROMETRIC RATE FAULT
 - (j) AIR DATA BUS 2 COMPUTED AIRSPEED FAULT
 - (k) AIR DATA BUS 2 CORRECTED ALTITUDE FAULT
 - (l) AIR DATA BUS 2 QNH CORRECTED ALTITUDE FAULT
 - (m) AIR DATA BUS 2 TRUE AIRSPEED FAULT
 - (n) AIR DATA BUS 2 STATIC AIR TEMPERATURE FAULT
 - (o) IRS BUS 1 ALTITUDE FAULT
 - (p) IRS BUS 1 GROUND SPEED FAULT
 - (q) IRS BUS 1 INERTIAL VERTICAL ACCELERATION FAULT
 - (r) IRS BUS 1 LATITUDE FAULT
 - (s) IRS BUS 1 LONGITUDE FAULT
 - (t) IRS BUS 1 LONGITUDINAL ACCELERATION FAULT
 - (u) IRS BUS 1 MAGNETIC TRACK FAULT
 - (v) IRS BUS 1 MODE FAULT
 - (w) IRS BUS 1 NORMAL ACCELERATION FAULT
 - (x) IRS BUS 1 PITCH ANGLE FAULT
 - (y) IRS BUS 1 PITCH RATE FAULT
 - (z) IRS BUS 1 ROLL ANGLE FAULT
 - (aa) IRS BUS 1 TRUE HEADING FAULT
 - (ab) IRS BUS 1 TRUE TRACK FAULT
 - (ac) IRS BUS 1 VERTICAL SPEED FAULT
 - (ad) IRS BUS 2 ALTITUDE FAULT
 - (ae) IRS BUS 2 GROUND SPEED FAULT
 - (af) IRS BUS 2 INERTIAL VERTICAL ACCELERATION FAULT
 - (ag) IRS BUS 2 LATITUDE FAULT
 - (ah) IRS BUS 2 LONGITUDE FAULT
 - (ai) IRS BUS 2 LONGITUDINAL ACCELERATION FAULT
 - (aj) IRS BUS 2 MAGNETIC TRACK FAULT
 - (ak) IRS BUS 2 MODE FAULT
 - (al) IRS BUS 2 NORMAL ACCELERATION FAULT
 - (am) IRS BUS 2 PITCH ANGLE FAULT
 - (an) IRS BUS 2 PITCH RATE FAULT
 - (ao) IRS BUS 2 ROLL ANGLE FAULT
 - (ap) IRS BUS 2 TRUE HEADING FAULT
 - (aq) IRS BUS 2 TRUE TRACK FAULT
 - (ar) IRS BUS 2 VERTICAL SPEED FAULT
- (2) Data is still being transmitted on the ARINC 429 bus, but the data is not reasonable. Bus 1 has data from the left ADIRU. Bus 2 has data from the right ADIRU.

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B. Possible Causes

- (1) Air data or IRS data input problem to the ADIRU.
- (2) Air data inertial reference unit (ADIRU), M1749 (left ADIRU) or M1752 (right ADIRU).
- (3) Ground proximity warning computer (GPWC), M652

C. Initial Evaluation

- (1) If you also hear the maintenance message AIR DATA BUS 1 INACTIVE during Current Faults, then, do this task: Air Data Bus 1 to GPWS Problem - Fault Isolation, 34-46 TASK 822.
- (2) If you also hear the maintenance message AIR DATA BUS 2 INACTIVE during Current Faults, then, do this task: Air Data Bus 2 to GPWS Problem - Fault Isolation, 34-46 TASK 823.
- (3) If you also hear the maintenance message IRS BUS 1 INACTIVE or IRS BUS 2 INACTIVE during Current Faults, then, do this task: IRS Bus to GPWS Problem - Fault Isolation, 34-46 TASK 824.
- (4) If you hear the maintenance message in Current Faults and you do not hear an AIR DATA BUS INACTIVE or IRS BUS INACTIVE maintenance message, then do the Fault Isolation Procedure below.
- (5) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) For the applicable ADIRS, do this task: ADIRS BITE Procedure, 34-21 TASK 801
NOTE: For a Bus 1 maintenance message, make the L ADIRS selection. For a Bus 2 maintenance message, make the R ADIRS selection.
 - (a) If the ADIRS BITE test shows a similar IR data fault, air data fault, or ADIRU internal fault, then do these steps:
 - 1) Go to the fault isolation task for the applicable ADIRS maintenance message to correct the fault.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - a) If you do not hear the maintenance message in Current Status, then you corrected the fault.
 - b) If you hear the maintenance message in Current Status, then continue.
 - (b) If the ADIRS BITE test does not show a similar IR data fault, air data fault, or ADIRU internal fault then continue.
- (2) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:

Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

———— **END OF TASK** ————

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841. FMC ARINC 429 Signal Fault - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) FMC BUS 1 LATITUDE FAULT
 - (b) FMC BUS 1 LONGITUDE FAULT
 - (c) FMC BUS 1 MAGNETIC TRACK FAULT
 - (d) FMC BUS 1 RNP FAULT
- (2) The GPWC uses latitude, longitude and magnetic track for envelope modulation. Envelope modulation is different for particular airports, so the aircraft location must be known. The GPWC can use latitude and longitude from the Flight Management Computer (FMC) or from the Inertial Reference System (IRS). The FMC is preferred. The IRS will automatically be selected if the FMC is not valid.
 - (a) Loss of latitude and longitude will not cause the INOP light to come on. An FMC error of this magnitude will appear elsewhere first.

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- (3) With the FMC source select switch at NORMAL, the GPWC gets data from the Left FMC (FMC 1).

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- (4) For software related issues, no change is required when the latest FMC Operational Software is in use. For earlier version FMC software, some software related faults may be resolved with update to the latest FMC software.
 - (a) If an FMC containing only this kind of fault is returned to GE Aviation, the FMC will pass all tests, and be returned to the customer as No Fault Found.

B. Possible Causes

- (1) Air Data Inertial Reference Unit (ADIRU) input problem to the FMC
- (2) GPWC, M652
- (3) Software
- (4) FMC, M1175

C. Initial Evaluation

- (1) If you also hear the maintenance message FMC BUS 1 INACTIVE during Current Faults, then, do this task: FMC Bus to GPWS Problem - Fault Isolation, 34-46 TASK 828.
- (2) If you hear the maintenance message in Current Faults and you do not hear FMC BUS 1 INACTIVE, then do the Fault Isolation Procedure below.
- (3) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Verify the software configuration of the FMC. This is the task: FMC Software Configuration Check, AMM TASK 34-61-00-750-801.
 - (a) If you find a problem with the configuration, then do these steps:

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- 1) Load the correct software for the flight management computer. This is the task: FMC Software Installation with a Portable Data Loader, AMM TASK 34-61-00-470-805.
- 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find a problem with the configuration, then continue.
- (2) For the FMC, do this task: FMC Diagnostic Data Transfer, AMM TASK 34-61-00-810-801.
 - (a) Do the Repair Confirmation at the end of this task.
- (3) Make sure the Flight Management Computer System (FMCS) operation is normal.

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- (a) With the FMC Select Switch at NORMAL, look for these indications of a failed FMC:
 - 1) FAIL light on the CDU is on.
 - 2) SINGLE FMC OPERATION shows on the Control Display Unit (CDU).
 - 3) FMC shows in the middle of the CDU display.

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- (b) If there is an indication of an FMCS failure, then do these steps:
 - 1) Replace the FMCS computer, M1175. These are the tasks:
 - FMCS Computer Removal, AMM TASK 34-61-02-000-801
 - FMCS Computer Installation, AMM TASK 34-61-02-400-801
 - 2) Do the Repair Confirmation at the end of this task.
- (c) If there is no indication of an FMCS failure, then continue.
- (4) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - (a) If the FMCS BITE tests shows an input fault in FMC SENSOR STATUS, then go to the fault isolation task for the applicable FMCS maintenance message to correct the fault.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If the FMCS BITE tests shows an input fault in FMC SENSOR STATUS, then continue.
- (5) Replace the GPWC, M652. These are the tasks:
 - Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801
 - Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801
 - (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the problem.

E. Repair Confirmation

- (1) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - (a) If you do not hear the maintenance message in Current Status, then you corrected the problem.
 - (b) If you hear the maintenance message in Current Status, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

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842. GPS or ILS ARINC 429 Signal Fault - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
- (a) Global Positioning System (GPS) BUS 1 ALTITUDE FAULT
 - (b) GPS BUS 1 DATE FAULT
 - (c) GPS BUS 1 GROUND SPEED FAULT
 - (d) GPS BUS 1 HDOP FAULT
 - (e) GPS BUS 1 HFOM FAULT
 - (f) GPS BUS 1 HORIZONTAL INTEGRITY LIMIT FAULT
 - (g) GPS BUS 1 LATITUDE FAULT
 - (h) GPS BUS 1 LATITUDE FINE FAULT
 - (i) GPS BUS 1 LONGITUDE FAULT
 - (j) GPS BUS 1 LONGITUDE FINE FAULT
 - (k) GPS BUS 1 SENSOR STATUS FAULT
 - (l) GPS BUS 1 TRUE TRACK FAULT
 - (m) GPS BUS 1 UTC FAULT
 - (n) GPS BUS 1 VDOP FAULT
 - (o) GPS BUS 1 VERTICAL VELOCITY FAULT
 - (p) GPS BUS 1 VFOM FAULT
 - (q) GPS BUS 2 ALTITUDE FAULT
 - (r) GPS BUS 2 DATE FAULT
 - (s) GPS BUS 2 GROUND SPEED FAULT
 - (t) GPS BUS 2 HDOP FAULT
 - (u) GPS BUS 2 HFOM FAULT
 - (v) GPS BUS 2 HORIZONTAL INTEGRITY LIMIT FAULT
 - (w) GPS BUS 2 LATITUDE FAULT
 - (x) GPS BUS 2 LATITUDE FINE FAULT
 - (y) GPS BUS 2 LONGITUDE FAULT
 - (z) GPS BUS 2 LONGITUDE FINE FAULT
 - (aa) GPS BUS 2 SENSOR STATUS FAULT
 - (ab) GPS BUS 2 TRUE TRACK FAULT
 - (ac) GPS BUS 2 UTC FAULT
 - (ad) GPS BUS 2 VDOP FAULT
 - (ae) GPS BUS 2 VERTICAL VELOCITY FAULT
 - (af) GPS BUS 2 VFOM FAULT
 - (ag) ILS BUS 1 GLIDESLOPE FAULT
 - (ah) ILS BUS 2 GLIDESLOPE FAULT

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- (ai) ILS BUS 1 LOCALIZER FAULT
- (aj) ILS BUS 2 LOCALIZER FAULT
- (2) The Ground Proximity Warning System (GPWS) receives GPS BUS 1 and ILS data from the MMR No. 1. It receives GPS BUS 2 data from the MMR No. 2.

B. Possible Causes

- (1) Input problem to MMR
- (2) MMR No.1 (No.2), M2104 (M2105)
- (3) GPWC, M652
- (4) Wiring.

C. Initial Evaluation

- (1) If you also hear the maintenance message GPS BUS 1 INACTIVE or GPS BUS 2 INACTIVE during Current Faults, then, do this task: GPS Bus to GPWS Problem - Fault Isolation, 34-46 TASK 830.
- (2) If you also hear the maintenance message ILS BUS 1 INACTIVE or ILS BUS 2 INACTIVE during Current Faults, then, do this task: ILS Bus to GPWS Problem - Fault Isolation, 34-46 TASK 829.
- (3) If you hear the maintenance message in Current Faults and you do not hear a GPS BUS INACTIVE or ILS BUS 1 INACTIVE maintenance message, then do the Fault Isolation Procedure below.
- (4) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) For the applicable MMR, do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.

NOTE: For a Bus 1 fault, do the BITE test on MMR-1. For a Bus 2 fault, do the BITE test on MMR-2.

- (a) If the MMR BITE test shows a fault, then go to the fault isolation task for the applicable MMR maintenance message to correct the fault.
 - 1) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - a) If you do not hear the maintenance message in Current Status, then you corrected the fault.
 - (b) If the MMR BITE test does not show a fault, then continue.
- (2) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:

Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

 - (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

————— **END OF TASK** —————

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843. SMYD ARINC 429 Signal Fault - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) SMYD BUS 1 CORRECTED ANGLE OF ATTACK FAULT
 - (b) SMYD BUS 1 FLAP ANGLE FAULT
 - (c) SMYD BUS 1 INDICATED ANGLE OF ATTACK FAULT
 - (d) SMYD BUS 1 MINIMUM OPERATING SPEED FAULT
 - (e) SMYD BUS 1 STICK SHAKER ANGLE OF ATTACK FAULT
 - (f) SMYD BUS 2 CORRECTED ANGLE OF ATTACK FAULT
 - (g) SMYD BUS 2 FLAP ANGLE FAULT
 - (h) SMYD BUS 2 INDICATED ANGLE OF ATTACK FAULT
 - (i) SMYD BUS 2 MINIMUM OPERATING SPEED FAULT
 - (j) SMYD BUS 2 STICK SHAKER ANGLE OF ATTACK FAULT
- (2) The GPWC receives SMYD Bus 1 data from SMYD 1. It receives SMYD Bus 2 data from SMYD 2.
- (3) The GPWC uses the SMYD inputs for windshear computations. Redundant failures can cause the INOP light to come on.

B. Possible Causes

- (1) Air data input problem to SMYD 1 or SMYD 2.
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Stall management yaw damper (SMYD), M1747 (SMYD 1) or M1748 (SMYD 2).

C. Initial Evaluation

- (1) If you also hear the maintenance message SMYD BUS 1 INACTIVE or SMYD BUS 2 INACTIVE during Current Faults, then, do this task: SMYD Bus to GPWS Problem - Fault Isolation, 34-46 TASK 827.
- (2) If you hear the maintenance message in Current Faults and you do not hear a SMYD BUS 1 INACTIVE or SMYD BUS 2 INACTIVE maintenance message, then do the Fault Isolation Procedure below.
- (3) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) For the applicable SMYD, do this task: Stall Management Yaw Damper BITE Procedure, 27-32 TASK 801.

NOTE: For Bus 1 faults, do the BITE test on SMYD 1. For Bus 2 faults, do the BITE test on SMYD 2.

- (a) If the SMYD BITE test shows an internal SMYD fault or a related air data fault in EXISTING FAULTS, then go to the fault isolation task for the applicable SMYD maintenance message to correct the fault.

- 1) Do this task: GPWS BITE Procedure, 34-46 TASK 801.

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- a) If you do not hear the maintenance message in Current Status, then you corrected the fault.
- (b) If the SMYD BITE test does not show an internal SMYD fault or a related air data fault, then continue.
- (2) Replace the ground proximity warning computer (GPWC), M652.
These are the tasks:
Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

————— **END OF TASK** —————

844. Weather Radar Hazard ARINC 429 Signal Fault - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) WEATHER RADAR HAZARD BUS 1 STATUS WORD FAULT
- (2) The weather radar receiver/transmitter gives an indication to the GPWC of any weather radar alerts. If the GPWC has an alert, then the GPWC will compare the priority of its alert to that of the weather radar. The higher priority alert will show or be heard.

B. Possible Causes

- (1) Ground proximity warning computer (GPWC), M652.
- (2) Weather radar receiver/transmitter, M101.

C. Initial Evaluation

- (1) If you also hear the maintenance message WEATHER RADAR HAZARD BUS 1 INACTIVE during Current Faults, then, do this task: Weather Radar Hazard Bus to GPWS Problem - Fault Isolation, 34-46 TASK 834.
- (2) If you hear the maintenance message in Current Faults and you do not hear a WEATHER RADAR HAZARD BUS 1 INACTIVE maintenance message, then do the Fault Isolation Procedure below.
- (3) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Do this check of the weather radar receiver/transmitter:
 - (a) Do this task: Weather Radar (WXR) System - Operational Test, AMM TASK 34-43-00-710-802-001.
 - 1) If the operational test is not satisfactory, then go to the fault isolation task for the problem that you find to correct the fault.
 - a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - b) If you do not hear the maintenance message in Current Faults, then you corrected the fault.

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- 2) If the operational test is satisfactory, then continue.
- (2) Replace the ground proximity warning computer (GPWC), M652.
These are the tasks:
Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

END OF TASK

845. EFIS ARINC 429 Signal Fault - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) EFIS BUS 1 DECISION HEIGHT FAULT
 - (b) EFIS BUS 1 DISCRETE WORD 1 FAULT
 - (c) EFIS BUS 1 DISCRETE WORD 2 LEFT FAULT
 - (d) EFIS BUS 1 DISCRETE WORD 2 RIGHT FAULT
 - (e) EFIS BUS 1 LANDING ALTITUDE FAULT
 - (f) EFIS BUS 1 MINIMUM DECISION ALTITUDE FAULT
 - (g) EFIS BUS 2 DECISION HEIGHT FAULT
 - (h) EFIS BUS 2 DISCRETE WORD 1 FAULT
 - (i) EFIS BUS 2 DISCRETE WORD 2 LEFT FAULT
 - (j) EFIS BUS 2 DISCRETE WORD 2 RIGHT FAULT
 - (k) EFIS BUS 2 LANDING ALTITUDE FAULT
 - (l) EFIS BUS 2 MINIMUM DECISION ALTITUDE FAULT
- (2) The GPWC receives EFIS Bus 1 data from DEU 1. The GPWC receives EFIS Bus 2 data from DEU 2.

B. Possible Causes

- (1) Air data input problem to DEU 1 or DEU 2.
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Display electronics unit (DEU), M1808 (DEU-1) or M1809 (DEU-2).

C. Initial Evaluation

- (1) If you also hear the maintenance message EFIS BUS 1 INACTIVE or EFIS BUS 2 INACTIVE during Current Faults, then, do this task: EFIS BUS to GPWS Problem - Fault Isolation, 34-46 TASK 826.
- (2) If you hear the maintenance message in Current Faults and you do not hear an EFIS BUS 1 INACTIVE or EFIS BUS 2 INACTIVE maintenance message, then do the Fault Isolation Procedure below.
- (3) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

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D. Fault Isolation Procedure

- (1) For the applicable DEU, do this task: CDS BITE Procedure, 31-62 TASK 801.

NOTE: For Bus 1 faults, make the DEU-1 selection. For Bus 2 faults, make the DEU-2 selection.

- (a) If the CDS BITE test shows an internal DEU fault or a related air data fault in **CURRENT STATUS**, then go to the fault isolation task for the applicable DEU maintenance message to correct the fault.
- 1) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
- a) If you do not hear the maintenance message in Current Status, then you corrected the fault.
- (b) If the CDS BITE test does not show an internal DEU fault or a related air data fault in **CURRENT STATUS**, then continue.
- (2) Replace the ground proximity warning computer (GPWC), M652.
- These are the tasks:
- Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
- 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

———— **END OF TASK** ————

846. MCP ARINC 429 Signal Fault - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
- (a) MCP BUS SELECTED COURSE FAULT
- (2) The selected course data from the Mode Control Panel (MCP) is not reasonable.

B. Possible Causes

- (1) DFCS mode control panel (MCP), M198.
- (2) Ground proximity warning computer (GPWC), M652.

C. Initial Evaluation

- (1) If you also hear the maintenance message MCP BUS INACTIVE during Current Faults, then, do this task: MCP Bus to GPWS Problem - Fault Isolation, 34-46 TASK 833.
- (2) If you hear the maintenance message in Current Faults and you do not hear an MCP BUS INACTIVE maintenance message, then do the Fault Isolation Procedure below.
- (3) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) For the MCP, do this task: LRU Replacement Test, 22-11 TASK 802.
- (a) If the MCP replacement test shows an MCP internal fault, then do these steps:
- 1) Replace the mode control panel, M198.

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These are the tasks:

DFCS Mode Control Panel Removal, AMM TASK 22-11-34-000-801,

DFCS Mode Control Panel Installation, AMM TASK 22-11-34-400-801.

- 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
- 3) If you do not hear the maintenance message in Current Faults, then you corrected the fault.

(b) If the MCP replacement test does not show an MCP internal fault, then continue.

- (2) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:

Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,

Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

- (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.

- 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

————— **END OF TASK** —————

847. Radio Altimeter ARINC 429 Signal Fault - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) RADIO ALTIMETER BUS 1 RADIO ALTITUDE FAULT
 - (b) RADIO ALTIMETER BUS 2 RADIO ALTITUDE FAULT
- (2) The GPWC receives radio altimeter Bus 1 data from the No. 1 radio altimeter receiver/transmitter. The GPWC receives radio altimeter Bus 2 data from the No. 2 radio altimeter receiver/transmitter.

B. Possible Causes

- (1) Radio altimeter receiver/transmitter, M1735 (No. 1) or M1736 (No. 2).
- (2) Ground proximity warning computer (GPWC), M652.

C. Initial Evaluation

- (1) If you also hear the maintenance message RADIO ALTIMETER BUS 1 INACTIVE or RADIO ALTIMETER BUS 2 INACTIVE during Current Faults, then, do this task: Radio Altimeter Bus to GPWS Problem - Fault Isolation, 34-46 TASK 832.
- (2) If you hear the maintenance message in Current Faults and you do not hear a RADIO ALTIMETER BUS 1 INACTIVE or RADIO ALTIMETER BUS 2 INACTIVE maintenance message, then do the Fault Isolation Procedure below.
- (3) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) For the applicable radio altimeter receiver/transmitter, do this task: Low Range Radio Altimeter (LRR) BITE Procedure, 34-33 TASK 801.

NOTE: For Bus 1 faults, do the BITE test on the No. 1 radio altimeter receiver/transmitter. For Bus 2 faults, do the BITE test on the No. 2 radio altimeter receiver/transmitter.

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- (a) If the LRRRA BITE test shows a receiver/transmitter internal fault, then do these steps:
 - 1) Replace the applicable radio altimeter receiver/transmitter, M1735 (No. 1) or M1736 (No. 2).

These are the tasks:
Low Range Radio Altimeter (LRRRA) Receiver/Transmitter (R/T) Removal, AMM TASK 34-33-21-000-801,
Low Range Radio Altimeter (LRRRA) Receiver/Transmitter (R/T) Installation, AMM TASK 34-33-21-400-801.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 3) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
- (b) If the LRRRA BITE test does not show a receiver/transmitter internal fault, then continue.
- (2) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:
Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

————— **END OF TASK** —————

848. Glideslope Cancel Discrete Signal Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) GLIDESLOPE CANCEL INVALID

B. Possible Causes

- (1) BELOW G/S light, L1 (captain's) or L2 (first officer's).
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 308).
- (2) (SSM 34-49-11).
- (3) (WDM 34-49-11).

D. Initial Evaluation

- (1) Do this check of the glideslope cancel discrete input:
 - (a) Push the GROUND PROXIMITY SYS TEST switch momentarily (less than 2 seconds) again and again until you hear "DISCRETE TEST".
 - (b) Push and hold the captain's BELOW G/S light switch on the captain's instrument panel, P1-1.
 - (c) Listen for the "GLIDESLOPE CANCELED" aural message.

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- (d) Release the captain's BELOW G/S light switch.
- (e) Listen for the "GLIDESLOPE ENABLED" aural message.
- (f) Push and hold the first officer's BELOW G/S light switch on the first officer's instrument panel, P3-1.
- (g) Listen for the "GLIDESLOPE CANCELED" aural message.
- (h) Release the first officer's BELOW G/S light switch.
- (i) Listen for the "GLIDESLOPE ENABLED" aural message.
- (j) If the check of the glideslope cancel discrete input is satisfactory, then there was an intermittent fault.
- (k) If the check of the glideslope cancel discrete input is not satisfactory for the captain's BELOW G/S light switch only, then do the Fault Isolation Procedure - Captain's BELOW G/S Light Switch below.
- (l) If the check of the glideslope cancel discrete input is not satisfactory for the first officer's BELOW G/S light switch only, then do the Fault Isolation Procedure - First Officer's BELOW G/S Light Switch below.
- (m) If the check of the glideslope cancel discrete input is not satisfactory for both BELOW G/S light switches, then do the Fault Isolation Procedure - GPWC below.

E. Fault Isolation Procedure - Captain's BELOW G/S Light Switch

NOTE: You must do the steps in the Initial Evaluation before you do these steps.

- (1) Replace the captain's BELOW G/S light switch, L1 on the captain's instrument panel, P1-1.
 - (a) Do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then continue.
- (2) Do this check of the wiring:
 - (a) Disconnect connector D423 from the captain's instrument panel, P1-1.
 - (b) Do a wiring check at the P1 panel between these pins of connector D423 and terminal block TB101:

D423	TB101
pin 5	term YA9

- (c) Make sure pin 4 of D423 goes to ground.
- (d) Repair the wiring problem that you find.
- (e) Re-connect connector D423 to the captain's instrument panel.
- (f) Do the Repair Confirmation at the end of this task.

F. Fault Isolation Procedure - First Officer's BELOW G/S Light Switch

NOTE: You must do the steps in the Initial Evaluation before you do these steps.

- (1) Replace the first officer's BELOW G/S light switch, L2 on the first officer's instrument panel, P3-1.
 - (a) Do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then continue.
- (2) Do this check of the wiring:

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- (a) Disconnect connector D3991 from the first officer's instrument panel, P3-1.
- (b) Do a wiring check between these pins of connector D3991 at the P3-1 panel and terminal block TB101 at the captain's instrument panel, P1:

D3991	TB101
pin 12	term YA9

- (c) Make sure pin 13 of D3991 goes to ground.
- (d) Repair the wiring problem that you find.
- (e) Re-connect connector D3991 to the first officer's instrument panel.
- (f) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - GPWC

NOTE: You must do the steps in the Initial Evaluation before you do these steps.

- (1) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:

Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

- (a) Do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then continue.
- (2) Do this check of the wiring:
 - (a) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - (b) Do a wiring check panel between these pins of connector D1153B for the GPWC and terminal block TB101 at the captain's instrument panel, P1:

D1153B	TB101
pin D9	term YA9

- (c) Repair the wiring problem that you find.
- (d) Re-install the GPWC, M652. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (e) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this check of the glideslope cancel discrete input:
 - (a) Push the GROUND PROXIMITY SYS TEST switch momentarily (less than 2 seconds) again and again until you hear "DISCRETE TEST".
 - (b) Push and hold the captain's BELOW G/S light switch on the captain's instrument panel, P1-1.
 - (c) Listen for the "GLIDESLOPE CANCELED" aural message.
 - (d) Release the captain's BELOW G/S light switch.
 - (e) Listen for the "GLIDESLOPE ENABLED" aural message.

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- (f) Push and hold the first officer's BELOW G/S light switch on the first officer's instrument panel, P3-1.
- (g) Listen for the "GLIDESLOPE CANCELED" aural message.
- (h) Release the first officer's BELOW G/S light switch.
- (i) Listen for the "GLIDESLOPE ENABLED" aural message.
- (j) If the check of the glideslope cancel discrete input is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

850. Self Test Discrete Signal Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) SELF TEST INVALID

B. Possible Causes

- (1) SELF TEST switch (S653) in the GPWS module, P3-7.
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 308).
- (2) (SSM 34-49-11).
- (3) (WDM 34-49-11).

D. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) Replace the GPWS module, P3-7.

These are the tasks:

Ground Proximity Warning Module Removal, AMM TASK 34-46-02-000-801,

Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.

- (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.

- 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.
- 2) If you hear the maintenance message in Current Status, then continue.

- (2) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:

Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,

Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

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- (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.
 - 2) If you hear the maintenance message in Current Status, then continue.
- (3) Do this check of the wiring:
 - (a) Remove the ground proximity module P3-7, from the P3 first officer's instrument panel. To remove it, do this task: Ground Proximity Warning Module Removal, AMM TASK 34-46-02-000-801.
 - (b) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - (c) Do a wiring check between these pins of connector D1205 for the GPWS module and connector D1153B for the GPWC:

D1205	D1153B
pin 4	pin A9
 - (d) Repair the wiring problem that you find.
 - (e) Re-install the ground proximity module. To install it, do this task: Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.
 - (f) Re-install the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - (g) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Status, then you corrected the fault.

————— **END OF TASK** —————

851. Terrain Inhibit Discrete Signal Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) TERRAIN INHIBIT INVALID

B. Possible Causes

- (1) TERR INHIBIT switch (S1120), in the GPWS module, P3-7.
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Wiring.

C. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 308).
- (2) (SSM 34-49-11).
- (3) (WDM 34-49-11).

D. Initial Evaluation

- (1) Do this check of the terrain inhibit discrete input:
 - (a) Make sure the TERR INHIBIT switch on the GPWS module, P3-7 is in the NORMAL position.

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- (b) Push the GROUND PROXIMITY SYS TEST switch momentarily (less than 2 seconds) again and again until you hear "DISCRETE TEST".
- (c) Put the TERR INHIBIT switch in the INHIBIT position.
- (d) Listen for the "TERRAIN OFF" aural message.
- (e) Put the TERR INHIBIT switch in the NORMAL position.
- (f) Listen for the "TERRAIN ON" aural message.
- (g) If the check of the terrain inhibit discrete input is satisfactory, then there was an intermittent fault.
- (h) If the check of the terrain inhibit discrete input is not satisfactory, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) Do this check of the TERR INHIBIT switch on the GPWS module, P3-7:
 - (a) Remove the GPWS module, P3-7. To remove it, do this task: Ground Proximity Warning Module Removal, AMM TASK 34-46-02-000-801.
 - (b) With the TERR INHIBIT switch at NORM, make sure there is not continuity between pin 10 and pin 6 on the GPWS module.
 - (c) Move the TERR INHIBIT switch to INHIBIT.
 - (d) Make sure there is continuity between pin 10 and pin 6 on the GPWS module.
 - (e) If the TERR INHIBIT switch does not operate correctly, then do these steps:
 - 1) Install a new GPWS module, P3-7. To install it, do this task: Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.
 - 2) Do the Repair Confirmation at the end of this task.
 - (f) If the TERR INHIBIT switch operates correctly, then do this step and continue:
 - 1) Re-install the GPWS module, P3-7. To install it, do this task: Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.
- (2) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:

Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

 - (a) Do the Repair Confirmation at the end of this task.
 - 1) If the Repair Confirmation is not satisfactory, then continue.
- (3) Do this check of the wiring:
 - (a) Remove the ground proximity module P3-7, from the P3 first officer instrument panel. To remove it, do this task: Ground Proximity Warning Module Removal, AMM TASK 34-46-02-000-801.
 - (b) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - (c) Do a wiring check between these pins of connector D1205 for the GPWS module and connector D1153B for the GPWC:

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D1205

pin 10

D1153B

pin B14

- (d) Repair the wiring problem that you find.
- (e) Re-install the ground proximity module P3-7, to the P3 first officer instrument panel. To install it, do this task: Ground Proximity Warning Module - Installation, AMM TASK 34-46-02-400-801.
- (f) Re-install the GPWC, M652. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (g) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do this check of the terrain inhibit discrete input:
 - (a) Make sure the TERR INHIBIT switch on the GPWS module, P3-7 is in the NORMAL position.
 - (b) Push the GROUND PROXIMITY SYS TEST switch momentarily (less than 2 seconds) again and again until you hear "DISCRETE TEST".
 - (c) Put the TERR INHIBIT switch in the INHIBIT position.
 - (d) Listen for the "TERRAIN OFF" aural message.
 - (e) Put the TERR INHIBIT switch in the NORMAL position.
 - (f) Listen for the "TERRAIN ON" aural message.
 - (g) If the check of the terrain inhibit discrete input is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

852. Terrain Relay Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) TERRAIN RELAY 1 FAULT
 - (b) TERRAIN RELAY 2 FAULT
- (2) You will hear a TERRAIN RELAY FAULT message when one of these conditions occur:
 - (a) Terrain data is selected to display and the GPWC does not get a 28 VDC monitor signal back from the terrain/weather relay.
 - (b) Terrain data is not selected to display and the GPWC gets a 28 VDC monitor signal from the terrain/weather relay.

B. Possible Causes

- (1) Terrain/weather relay, R745 (No. 1) or R746 (No. 2).
- (2) Ground proximity warning computer (GPWC), M652.
- (3) Wiring.

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C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C01519	TERRAIN DISPLAY

D. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 307).
(2) (SSM 34-49-11).
(3) (WDM 34-49-11).

E. Initial Evaluation

- (1) Do this check of the discrete input for the terrain relay monitor:
- (a) Make sure the DISPLAYS SOURCE selector switch on the forward overhead panel, P5, is in the AUTO position.
 - (b) Set the WX RADAR mode selector switch on the aft electronic panel, P8, to TEST.
 - (c) On both EFIS control panels, set these switches:
 - 1) Mode selector - MAP
 - 2) Range selector - 40
 - 3) TERR - on
 - (d) Make sure terrain data shows on both navigation displays.
 - 1) If terrain data does not show on one of the navigation displays, then do the Fault Isolation Procedure - One Relay below.
 - 2) If terrain data does not show on both of the navigation displays, then do the Fault Isolation Procedure - Both Relays below.

F. Fault Isolation Procedure - One Relay

- (1) Do this check for 28 VDC at the terrain/weather relay:
- (a) Remove the applicable terrain/weather relay, R745 (No. 1) or R746 (No. 2)
NOTE: R745 is in the J24 junction box. The J24 junction box is behind an access panel on the right bulkhead in the nose landing gear wheel well. R746 is in the J22 junction box. The J22 junction box is behind an access panel on the left bulkhead in the nose landing gear wheel well.
 - (b) Do a check for 28 VDC between pin 12 of the relay connector, D10847 (R745) or D10849 (R746) and structure ground.
 - (c) Do a check for 28 VDC between pin 7 of the relay connector, D10847 (R745) or D10849 (R746) and structure ground.
 - (d) If there is not 28 VDC at pin 7 or pin 12 of the relay connector, then do these steps.
 - 1) Do a check of the wiring between these pins of the connector for the applicable terrain/weather relay and connector D40680P at the J22 junction box:

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	RELAY CONNECTOR	J22 CONNECTOR
NO. 1 (R745)	D10847	D40680P
	pin 7	pin 9
	pin 12	pin 9
NO. 2 (R746)	D10849	D40680P
	pin 7	pin 9
	pin 12	pin 9

- 2) Repair the wiring problem that you find.
 - 3) Re-install the terrain/weather relay.
 - 4) Do the Repair Confirmation at the end of this task.
- (e) If there is 28 VDC at pin 7 and pin 12 of the relay connector, then continue.
- (2) Install a new terrain/weather relay, R745 (No. 1) or R746 (No. 2).
- (a) Do the Repair Confirmation at the end of this task.
- 1) If the Repair Confirmation is not satisfactory, then continue.
- (3) Do this check of the wiring:
- (a) Remove the GPWC, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - (b) Remove the applicable terrain/weather relay, R745 (No. 1) or R746 (No. 2)
 - (c) Do a check for an open circuit between these pins of connector D1153A for the GPWC and the connector for the applicable relay:

	GPWC CONNECTOR	TERRAIN/WEATHER RELAY CONNECTOR
NO. 1 (R745)	D1153A	D10847
	pin C7	pin 8
NO. 2 (R746)	D1153A	D10849
	pin D7	pin 8

- (d) If there is an open circuit, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the terrain/weather relay.
 - 3) Re-install the GPWC. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - 4) Do the Repair Confirmation at the end of this task.
- (e) If there is continuity between the pins, then re-install the terrain/weather relay and continue.
- (4) Install a new ground proximity warning computer (GPWC), M652. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

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- (a) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - Both Relays

- (1) Do this check of the wiring:

- (a) Remove the No. 2 terrain/weather relay, R746.

NOTE: R746 is in the J22 junction box. The J22 junction box is behind an access panel on the left bulkhead in the nose landing gear wheel well.

- (b) Do a wiring check between these pins of connector D10849 for the terrain/weather relay and the DISPLAY TERRAIN circuit breaker, C1519:

D10849	C1519
pin 7	term L

- (c) Repair the wiring problem that you find.
 - (d) Re-install the terrain/weather relay.
 - (e) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

- (1) Do this check of the discrete input for the terrain relay monitor:
 - (a) Make sure the DISPLAYS SOURCE selector switch on the forward overhead panel, P5, is in the AUTO position.
 - (b) Set the WX RADAR mode selector switch on the aft electronic panel, P8, to TEST.
 - (c) On both EFIS control panels, set these switches:
 - 1) Mode selector - MAP
 - 2) Range selector - 40
 - 3) TERR - on
 - (d) Make sure terrain data shows on both navigation displays.
 - (e) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 1) If you do not hear the maintenance message in Current Faults, then you corrected fault.

———— **END OF TASK** ————

853. Terrain Display Does Not Show - Fault Isolation

A. Description

- (1) The weather radar receiver/transmitter and the enhanced GPWC share a port into the Display Electronics Units (DEUs). There is a terrain/weather relay for each Display Electronic Unit (DEU) that switches between the terrain data from the GPWC and the weather radar data.
- (2) With the DISPLAYS SOURCE selector switch at AUTO, DEU-1 controls the captain's displays and DEU-2 controls the first officer's displays.
- (3) Both terrain/weather relays switch from weather radar data to terrain data automatically when GPWC has an alert that is a higher priority than the weather radar alert.
- (4) Either terrain/weather relay can switch from weather radar data to terrain data manually when you push the TERR switch on the applicable EFIS control panel.

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B. Possible Causes

- (1) Terrain/weather relay, R745 (No. 1) or R746 (No. 2).
- (2) GPWC, M652.
- (3) Wiring.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C01519	TERRAIN DISPLAY

D. Related Data

- (1) Simplified Schematic (34-46 TASK SUPPORT Figure 307).
- (2) SSM 34-49-11
- (3) WDM 34-49-11

E. Initial Evaluation

- (1) Do this check of the terrain display:
 - (a) Make sure the DISPLAYS SOURCE selector switch on the forward overhead panel, P5, is in the AUTO position.
 - (b) Set the WX RADAR mode selector switch on the aft electronic panel, P8, to TEST.
 - (c) On both EFIS control panels, set these switches:
 - 1) Mode selector - MAP
 - 2) Range selector - 40
 - 3) TERR - on
 - (d) Make sure terrain data shows on both navigation displays.
 - 1) If terrain data shows on both of the navigation displays, then there was an intermittent problem.
 - 2) If terrain data does not show on one or both of the navigation displays, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure - No Terrain Data on One Display

- (1) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - (a) If you hear a TERRAIN RELAY FAULT during the Ground Prox BITE test, then, do this task: Terrain Relay Problem - Fault Isolation, 34-46 TASK 852.
 - (b) If you do not hear a TERRAIN RELAY FAULT during the Ground Prox BITE test, then continue.
- (2) Do this of the wiring between the GPWC, M652 and the terrain/weather relay:
 - (a) Remove the GPWC, M652. This is the task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.

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- (b) Remove the applicable terrain/weather relay, R745 (No. 1) or R746 (No. 2)

NOTE: The terrain data for the captain's display goes through R745. The terrain data for the first officer's display goes through R746.

NOTE: R745 is in the J24 junction box. The J24 junction box is behind an access panel on the right bulkhead in the nose landing gear wheel well. R746 is in the J22 junction box. The J22 junction box is behind an access panel on the left bulkhead in the nose landing gear wheel well.

- (c) Do a check for an open circuit between these pins of the connector for the GPWC, M652 and the connector for the relay for the applicable display:

	GPWC CONNECTOR	TERRAIN/WEATHER RELAY CONNECTOR
Captain's	D1153A	D10847 (R745)
	pin A3	pin 2
	pin B3	pin 4
First Officer's	D1153A	D10849 (R746)
	pin C3	pin 2
	pin D3	pin 4

- (d) If there is an open circuit, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the terrain/weather relay.
- 3) Re-install the GPWC, M652. This is the task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- 4) Do the Repair Confirmation at the end of this task.

- (e) If there is continuity between the pins, then re-install the terrain/weather relay and continue.

- (3) Install a new GPWC, M652. This is the task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

- (a) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - No Terrain Data on Both Displays

- (1) Do this task: GPWS BITE Procedure, 34-46 TASK 801.

- (a) If you hear both TERRAIN RELAY 1 FAULT and TERRAIN RELAY 2 FAULT during the Ground Prox BITE test, then, do this task: Terrain Relay Problem - Fault Isolation, 34-46 TASK 852.

- (b) If you do not hear both TERRAIN RELAY 1 FAULT and TERRAIN RELAY 2 FAULT during the Ground Prox BITE test, then continue.

- (2) Replace the GPWC, M652. These are the tasks:

- Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801
- Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801

- (a) Do the Repair Confirmation at the end of this task.

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H. Repair Confirmation

- (1) Do this check of the terrain display:
 - (a) Make sure the DISPLAYS SOURCE selector switch on the forward overhead panel, P5, is in the AUTO position.
 - (b) Set the WX RADAR mode selector switch on the aft electronic panel, P8, to TEST.
 - (c) On both EFIS control panels, set these switches:
 - 1) Mode selector - MAP
 - 2) Range selector - 40
 - 3) TERR - on
 - (d) Make sure terrain data shows on both navigation displays.
 - 1) If terrain data shows on both of the navigation displays, then you corrected the problem.

————— **END OF TASK** —————

854. GPWC Internal Fault - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) APPLICATION DATABASE FAILED
 - (b) ARINC-429 RECEIVER FAILED
 - (c) ARINC-429 TRANSMITTER FAILED
 - (d) CONFIGURATION DATABASE FAILED
 - (e) ENVELOPE MODULATION DATABASE FAILED
 - (f) EXCESSIVE WATCHDOG TIMEOUTS FAILURE
 - (g) FLASH FILE SYSTEM WRITE FAILED
 - (h) NVM FAILED
 - (i) NVM RAM FAILED
 - (j) RAM FAILED
 - (k) ROM FAILED
 - (l) SOFTWARE CRC FAILED
 - (m) SUPPORT TASK FAILED
 - (n) SYSTEM OR MODE TASK FAILED
 - (o) TERRAIN DATABASE FAILED
 - (p) VOICE GENERATOR FAILED
 - (q) WATCHDOG TIMER TEST FAILED
- (2) The Ground Proximity Warning Computer (GPWC) has a internal fault.

B. Possible Causes

- (1) Ground proximity warning computer (GPWC), M652.

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C. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Replace the ground proximity warning computer (GPWC), M652. These are the tasks:
 - Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
 - Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (a) If the replacement test for the GPWC is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

855. Program Pin Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) AIRCRAFT TYPE INVALID
 - (b) AUDIO MENU INVALID
 - (c) CALLOUTS OPTION INVALID
 - (d) PROGRAM PIN 11 INVALID
 - (e) PROGRAM PIN 12 INVALID
 - (f) PROGRAM PIN 14 INVALID
 - (g) PROGRAM PIN 15 INVALID
 - (h) PROGRAM PIN 16 INVALID
 - (i) PROGRAM PIN 17 INVALID
 - (j) PROGRAM PIN 9 INVALID
 - (k) PROGRAM PIN PARITY ERROR
 - (l) PROGRAM PIN READ ERROR
- (2) There is a problem with the how the program pins for the Ground Proximity Warning Computer (GPWC) are connected.

B. Possible Causes

- (1) Wiring.
- (2) Ground proximity warning computer (GPWC), M652.

C. Related Data

- (1) (SSM 34-49-11).
- (2) (WDM 34-49-11).

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D. Initial Evaluation

- (1) If you hear the maintenance message in Current Faults, then do the Fault Isolation Procedure below.
- (2) If you hear the maintenance message in Fault History and not in Current Faults, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) Do this check of the GPWC program pin wiring:
 - (a) Use the wiring diagram to make sure these program pin connections for the applicable maintenance message are correct.

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MAINTENANCE MESSAGE	GPWC CONNECTOR
AIRCRAFT TYPE INVALID	D1153A pins A10, B10, C10
AUDIO MENU INVALID	D1153B pin A5
CALLOUTS OPTION INVALID	D1153B pins A8, B4, D4
PROGRAM PIN 9 INVALID	D1153B pin C2
PROGRAM PIN 11 INVALID	D1153B pin C4
PROGRAM PIN 12 INVALID	D1153A pin B5
PROGRAM PIN 14 INVALID	D1153A pin C2
PROGRAM PIN 15 INVALID	D1153B pin C15
PROGRAM PIN 16 INVALID	D1153B pin B8
PROGRAM PIN 17 INVALID	D1153A pin D6
PROGRAM PIN PARITY ERROR	D1153A pins A10, B5, B10, C2, C10
PROGRAM PIN PARITY ERROR	D1153B pins A4, A5, A8, B4, B5, B8, C2, C4, C15, D4, D14
PROGRAM PIN READ ERROR	D1153A pins A10, B5, B10, C2, C10
PROGRAM PIN READ ERROR	D1153B pins A4, A5, A8, B4, B5, B8, C2, C4, C15, D4, D14

- (b) If you find a problem with the wiring, then do these steps:

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- 1) Repair the wiring.
 - 2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - 3) If you do not hear the maintenance message in Current Faults, then you corrected the fault.
- (c) If you do not find a problem with the wiring, then continue.
- (2) Replace the ground proximity warning computer (GPWC), M652.
- These are the tasks:
- Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (a) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - (b) If you do not hear the maintenance message in Current Faults, then you corrected the fault.

————— **END OF TASK** —————

856. GPWS System Alert Message - Fault Isolation

A. Description

- (1) This task is for these GPWS system alert messages that can show on the navigation display:
 - (a) TERR POS
 - (b) TERR FAIL
- (2) TERR POS shows when there is not enough accuracy in the horizontal position data or if the horizontal position data is not available. This message will stop showing when the accuracy returns or when the data becomes available.

NOTE: This message will show if the airplane's GPS antennas do not have a clear view of the GPS satellites.
- (3) TERR FAIL shows when there is a Ground Proximity Warning System (GPWS) fault.

B. Initial Evaluation

- (1) If the GPWS system alert message shows on the navigation display, then do the Fault Isolation Procedure below.
- (2) If the GPWS system alert message does not show on the navigation display, then there was an intermittent fault.

C. Fault Isolation Procedure

- (1) Open and close this circuit breaker:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00629	GND PROX WARN

- (2) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - (a) If the GPWS BITE test shows a fault, then go to the fault isolation task for the applicable GPWC maintenance message to correct the fault.

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- 1) If the GPWS system alert message does not show on the navigation display, then you corrected the fault.

———— **END OF TASK** ————

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865. GPWS Voice Annunciation (Aural Warnings) Problem - Fault Isolation

A. Description

- (1) 1. The GPWS aural messages do not sound.

B. Possible Causes

- (1) 1. Remote electronic unit (REU), M1353.
- (2) 2. GPWS computer, M652.
- (3) 3. Wiring.

C. Related Data

- (1) (SSM 34-49-11).
- (2) (WDM 34-49-11).

D. Initial Evaluation

- (1) Do this task: Ground Proximity Warning System - Operational Test, AMM TASK 34-46-00-710-804-002.
 - (a) If the operational test is satisfactory, then there was an intermittent fault.
 - (b) If the operational test is not satisfactory, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - (a) If the GPWS BITE test shows a fault, then go to the fault isolation task for the applicable maintenance message to correct the fault.
 - 1) Do this task: Ground Proximity Warning System - Operational Test, AMM TASK 34-46-00-710-804-002.
 - 2) If the operational test is satisfactory, then you corrected the fault.
 - (b) If the GPWS BITE test does not show a fault, then continue.
- (2) Do this check of the REU:
 - (a) Push the SYS TEST switch on the GROUND PROXIMITY module.

NOTE: The GROUND PROXIMITY module is on the first officer's instrument panel, P3.
 - (b) If you do not hear the ground proximity aural annunciations during the test, then do these steps:
 - 1) Replace the REU, M1353.

These are the tasks:
Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
 - 2) Do this task: Ground Proximity Warning System - Operational Test, AMM TASK 34-46-00-710-804-002.

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- a) If the operational test is satisfactory, then you corrected the fault.
- (c) If you hear the ground proximity aural annunciations during the test, then continue.
- (3) Do this check of the wiring:
 - (a) Remove the GPWS computer, M652. To remove it, do this task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - (b) Remove the REU, M1353. To remove it, do this task: Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
 - (c) Do a check of the wiring between these pins of connector D1153B for the GPWS computer and D2501A for the REU:

D1153B		D2501A
pin C13	.....	pin K15
pin D13	.....	pin K14
- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the REU. To install it, do this task: Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
 - 3) Re-install the GPWS computer. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - 4) Do this task: Ground Proximity Warning System - Operational Test, AMM TASK 34-46-00-710-804-002.
- (e) If you do not find a problem with the wiring, then continue.
- (4) Install a new GPWS computer, M652. To install it, do this task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - (a) Do this task: Ground Proximity Warning System - Operational Test, AMM TASK 34-46-00-710-804-002.
 - 1) If the operational test is satisfactory, then you corrected the fault.

F. Repair Confirmation

- (1) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - (a) If the maintenance message does not show, then you corrected the fault.

————— END OF TASK —————

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857. TERR RANGE DISAGREE Message - Fault Isolation

A. Description

- (1) This task is for the alert message TERR RANGE DISAGREE.
- (2) A TERR RANGE DISAGREE message shows when the range data to the DEU disagrees between the GPWC and the on-side EFIS control panel. This can happen only when the DEU expects terrain data from the GPWC.

B. Possible Causes

- (1) EFIS control panel, P7-1 (captain's) or P7-1 (first officer's).
- (2) Ground proximity warning computer (GPWC), M652.

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- (3) Wiring.
- (4) Display electronic unit, M1808 (DEU-1) or M1809 (DEU-2).

C. Related Data

- (1) (SSM 31-62-15).
- (2) (SSM 34-49-11).
- (3) (WDM 31-62-15).
- (4) (WDM 34-49-11).

D. Initial Evaluation

- (1) Make sure the TERR switch is selected on the applicable EFIS control panel.
- (2) Make sure the CONTROL PANEL switch on the instrument switching module is set to NORMAL.
- (3) If TERR RANGE DISAGREE shows on the navigation display, then do the Fault Isolation Procedure below.
- (4) If TERR RANGE DISAGREE does not show on the navigation display, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) For the applicable DEU, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) Look for these types of faults:
 - 1) EFIS CP DATA fault
 - 2) ARINC-708 DATA fault
 - 3) GPWC DATA fault
 - 4) DEU fault
 - (b) If the CDS BITE test shows any of the above types of faults, then go to the fault isolation task for the applicable CDS maintenance message to correct the fault.
 - 1) If TERR RANGE DISAGREE does not show on the navigation display, then you corrected the fault.

————— **END OF TASK** —————

858. MAP/TERR RANGE DISAGREE Message - Fault Isolation

A. Description

- (1) This task is for the alert message MAP/TERR RANGE DISAGREE.
- (2) A MAP/TERR RANGE DISAGREE message shows when the range data to the DEU disagrees between the GPWC, the on-side Electronic Flight Instrument System (EFIS) Control Panel, and the FMC. This can happen only when the DEU expects terrain data from the GPWC.
- (3) For software related issues, no change is required when the latest FMC Operational Software is in use. For earlier version FMC software, some software related faults may be resolved with update to the latest FMC software.
 - (a) If an FMC containing only this kind of fault is returned to GE Aviation, the FMC will pass all tests, and be returned to the customer as No Fault Found.

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B. Possible Causes

- (1) EFIS Control Panel, P7-1 (captain's) or P7-1 (first officer's)
- (2) GPWC, M652
- (3) FMC, M1175
- (4) Wiring
- (5) DEU-1 (2), M1808 (M1809)
- (6) Software

C. Related Data

- (1) SSM 31-62-15
- (2) SSM 34-49-11
- (3) SSM 34-61-13
- (4) WDM 31-62-15
- (5) WDM 34-49-11
- (6) WDM 34-61-13

D. Initial Evaluation

- (1) Make sure the TERR Switch is selected on the applicable EFIS Control Panel.
- (2) Make sure the CONTROL PANEL Switch on the instrument switching module is set to NORMAL.
- (3) If MAP/TERR RANGE DISAGREE shows on the navigation display, then do the Fault Isolation Procedure below.
- (4) If MAP/TERR RANGE DISAGREE does not show on the navigation display, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) Verify the software configuration of the FMC. This is the task: FMC Software Configuration Check, AMM TASK 34-61-00-750-801.
 - (a) If you find a problem with the configuration, then do these steps:
 - 1) Load the correct software for the flight management computer. This is the task: FMC Software Installation with a Portable Data Loader, AMM TASK 34-61-00-470-805.
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find a problem with the configuration, then continue.
- (2) For the FMC, do this task: FMC Diagnostic Data Transfer, AMM TASK 34-61-00-810-801.
 - (a) Do the Repair Confirmation at the end of this task.
- (3) Make sure the FMCS operation is normal.

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- (a) With the FMC Select Switch at NORMAL, look for these indications of a failed FMC:
 - 1) FAIL light on the CDU is on
 - 2) SINGLE FMC OPERATION shows on the CDU.

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- 3) FMC shows in the middle of the CDU display.

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- (b) If there is an indication of an FMCS failure, then do these steps:
 - 1) Replace the FMCS, M1175. These are the tasks:
 - FMCS Computer Removal, AMM TASK 34-61-02-000-801
 - FMCS Computer Installation, AMM TASK 34-61-02-400-801
 - 2) Do the Repair Confirmation at the end of this task.
- (c) If there is no indication of a FMCS failure, then continue.
- (4) For the applicable CDU, do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) Look for these types of faults:
 - 1) EFIS CP DATA fault
 - 2) ARINC-708 DATA fault
 - 3) GPWC DATA fault
 - 4) FMC DATA fault
 - 5) DEU fault
 - (b) If the CDS BITE test shows any of the above types of faults, then go to the Fault Isolation Task for the applicable CDS maintenance message to correct the problem.
 - 1) If MAP/TERR RANGE DISAGREE does not show on the Navigation Display, then you corrected the problem.

F. Repair Confirmation

- (1) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - (a) If you do not hear the maintenance message in Current Status, then you corrected the problem.
 - (b) If you hear the maintenance message in Current Status, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

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860. VSD Flag Shows on Captains Display

A. Description

- (1) This task is for these observed faults:
 - (a) VSD TERR flag shows on the captains display.
 - (b) VSD flag shows on the captains display.
- NOTE:** VSD is an option available on the EGPWS part number 965-1690-050 (and on).

B. Possible Causes

- (1) GPWC, M652
- (2) DEU 1, M1808
- (3) Wiring

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00629	GND PROX WARN

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP

D. Related Data

- (1) SSM 34-49-11
(2) WDM 34-49-11

E. Initial Evaluation

- (1) Do these steps to prepare for the Initial Evaluation and Fault Isolation Procedure:
- Make sure that the DISPLAYS - SOURCE Selector on the P5 Panel is in the AUTO position.
 - Make sure that the DISPLAYS - CONTROL PANEL Switch on the P5 Panel is in the NORMAL position.
 - Set the Mode Select Switch to the MAP Mode.
 - Press the Center (CTR) Switch to change the display to the Center MAP Mode.
 - Press the Center (CTR) Switch again to display the VSD at the bottom half of the CTR MAP.
- NOTE: VSD will not display in any mode other than MAP.
- (2) If the VSD TERR flag shows on the captains ND display unit, then do the Fault Isolation Procedure below.
- (3) If the VSD flag shows on the captains ND Display Unit (DU), then replace the DEU 1, M1808. These are the tasks:
- Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
 - Display Electronic Unit Installation, AMM TASK 31-62-21-400-801
- (4) If the VSD TERR or VSD flags do not show on the captains ND DU, then there was an intermittent problem.

F. Fault Isolation Procedure

- (1) Replace the GPWC, M652. These are the tasks:
- Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801
 - Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801
- (2) Do the Repair Confirmation at the end of this task.
- (3) Do this check of the wiring (WDM 34-49-11):

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- (a) Remove the GPWC, M652. This is the task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
- (b) Remove the DEU 1, M1808. This is the task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
- (c) Do a check of the wiring between the GPWC, M652 and DEU 1, M1808 as follows:

DEU 1 D1153B	GROUND PROX COMPUTER D3973D
pin C1	pin A9
pin D1	pin B9

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the DEU 1, M1808. This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 3) Re-install the GPWC, M652. This is the task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - 4) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) If the VSD TERR flag does not show on the captains ND DU, then you corrected the problem.
- (2) If the VSD TERR flag shows on the captains ND DU, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

861. VSD Flag Shows on First Officers Display

A. Description

- (1) This task is for these observed faults:
 - (a) VSD TERR flag shows on the first officers display.
 - (b) VSD flag shows on the first officers display.

NOTE: VSD is an option available on the EGPWS part number 965-1690-050 (and on).

B. Possible Causes

- (1) GPWC, M652.
- (2) DEU 2, M1809.
- (3) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00629	GND PROX WARN

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

D. Related Data

- (1) SSM 34-49-11
- (2) WDM 34-49-11

E. Initial Evaluation

- (1) Do these steps to prepare for initial evaluation and fault isolation:
 - (a) Make sure the DISPLAYS - SOURCE Selector on the P5 panel is in the AUTO position.
 - (b) Make sure the DISPLAYS - CONTROL PANEL Switch on the P5 panel is in the NORMAL position.
 - (c) Set the Mode Select Switch to the MAP Mode.
 - (d) Press the Center (CTR) Switch to change the display to the Center MAP Mode.
 - (e) Press the Center (CTR) Switch again to display the VSD at the bottom half of the CTR MAP.

NOTE: VSD will not display in any mode other than MAP.

- (2) If the VSD TERR flag shows on the first officers display unit, then do the Fault Isolation Procedure below.
- (3) If the VSD flag shows on the first officers display unit, then do these tasks to replace Display Electronic Unit (DEU) 2, M1809. These are the tasks:
 - Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
 - Display Electronic Unit Installation, AMM TASK 31-62-21-400-801
- (4) If the VSD TERR or VSD flags do not show on the first officers display unit, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Replace the GPWC, M652. These are the tasks:
 - Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801
 - Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (2) Do this check of the wiring between the GPWC and DEU 2:
 - (a) Remove the GPWC, M652. This is the task: Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801.
 - (b) Remove the DEU 2, M1809. This is the task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a check of the wiring between these pins of connectors D1153B and D3973D (WDM 34-49-11).

D1153B

pin C1 pin A9
pin D1 pin B9

D3975D

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- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the DEU 2. This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 3) Re-install the GPWC. This is the task: Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.
 - 4) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) If the VSD TERR flag does not show on the captains ND DU, then you corrected the problem.
- (2) If the VSD TERR flag shows on the captains ND DU, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

864. GPWC COMPUTER STATUS Indicator - Fault Isolation

A. Description

- (1) This task is for the COMPUTER STATUS red status indicator light on the front panel of the ground proximity warning computer (GPWC).
- (2) The COMPUTER STATUS indicator usually means the GPWC has an internal fault. A program pin parity error can also cause the red COMPUTER STATUS indicator light to come on.

B. Possible Causes

- (1) Ground proximity warning computer (GPWC), M652.
- (2) GPWC program pin problem.

C. Initial Evaluation

- (1) Do this task: GPWS BITE Procedure, 34-46 TASK 801.
 - (a) If the red COMPUTER STATUS indicator light is on and you hear a program pin fault in current status, then, do this task: GPWC Internal Fault - Fault Isolation, 34-46 TASK 854.
 - (b) If the red COMPUTER STATUS indicator light is on and you do not hear a program pin fault in current status, then do the Fault Isolation Procedure below.
 - (c) If the red COMPUTER STATUS indicator light is not on, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Replace the ground proximity warning computer (GPWC), M652.

These are the tasks:

Ground Proximity Warning Computer Removal, AMM TASK 34-46-01-000-801,
Ground Proximity Warning Computer Installation, AMM TASK 34-46-01-400-801.

- (a) If the replacement test for the GPWC is satisfactory, then you corrected the fault.

————— **END OF TASK** —————

EFFECTIVITY
SIA ALL

34-46 TASKS 861-864

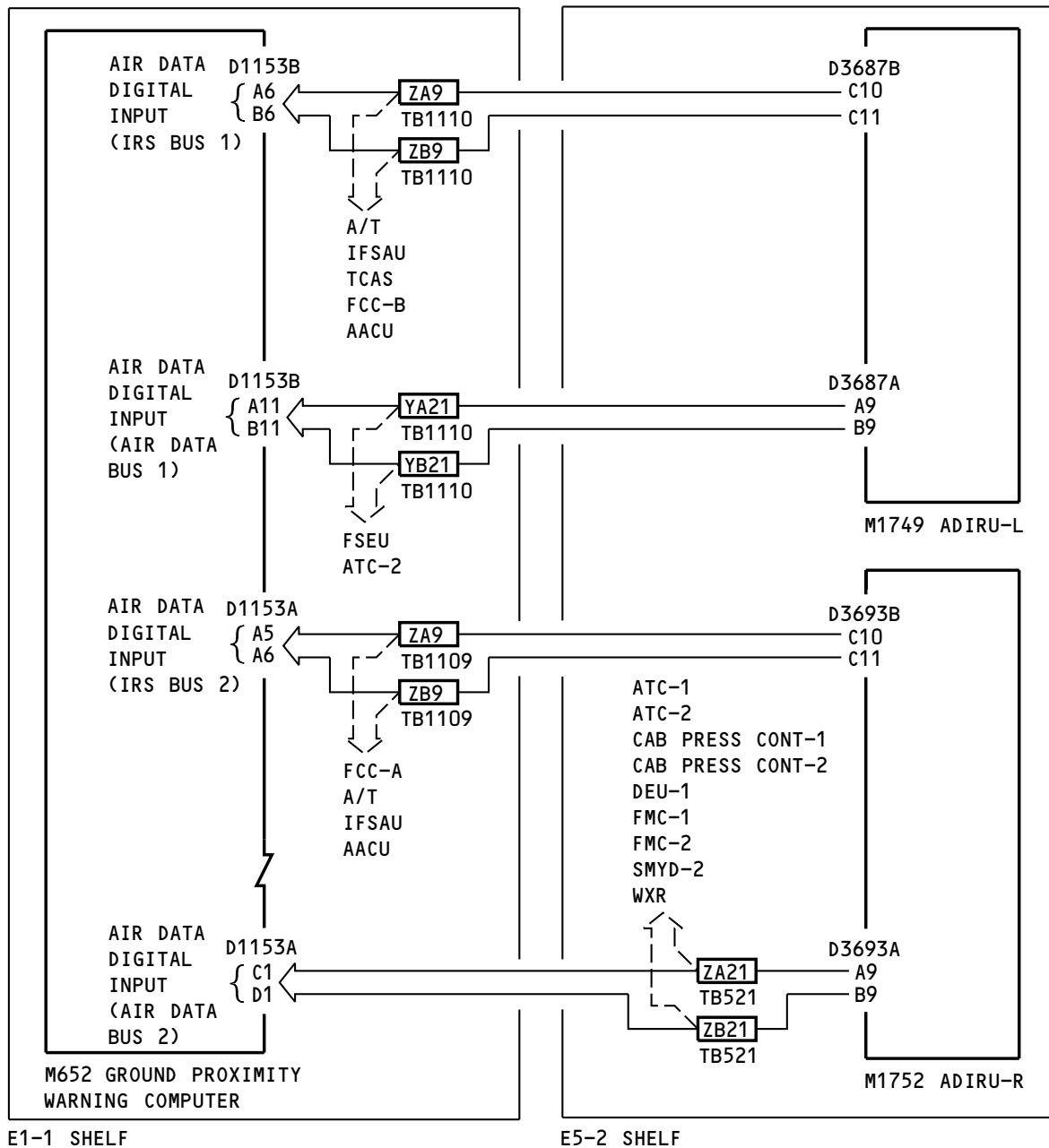
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SSM 34-21-13
34-21-14
34-21-23
34-21-24
34-49-11

WDM 34-21-13
34-21-14
34-21-23
34-21-24

H96043 S0006744397_V1

Enhanced GPWS IRS/Air Data Buses Simplified Schematic
Figure 301/34-46-00-990-801

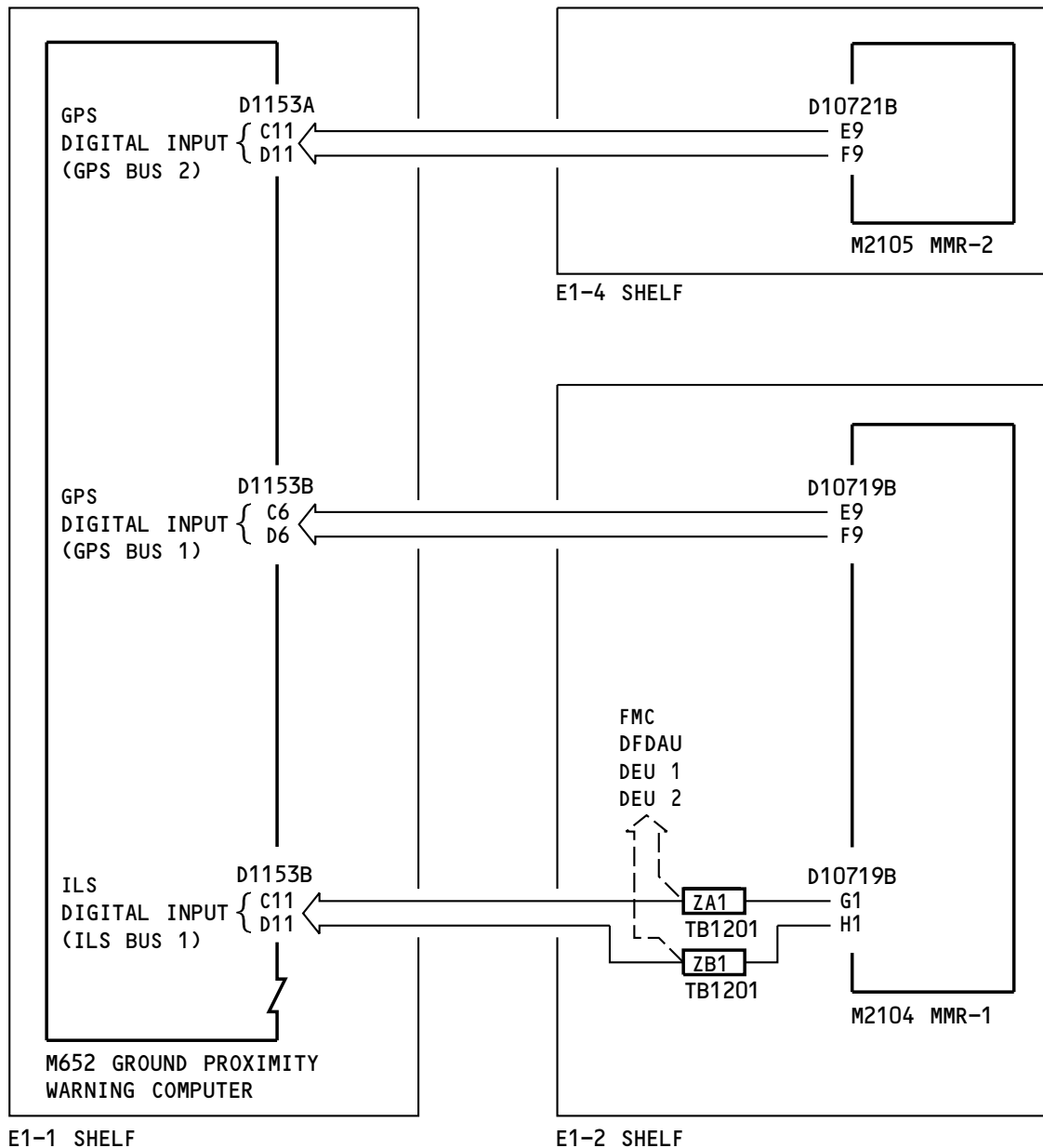
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SIA ALL

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SSM 34-31-11	WDM 34-31-11
34-58-11	34-58-11
34-58-21	34-58-21

H95944 S0006744399_V1

Enhanced GPWS ILS/GPS Data Buses Simplified Schematic
Figure 302/34-46-00-990-802

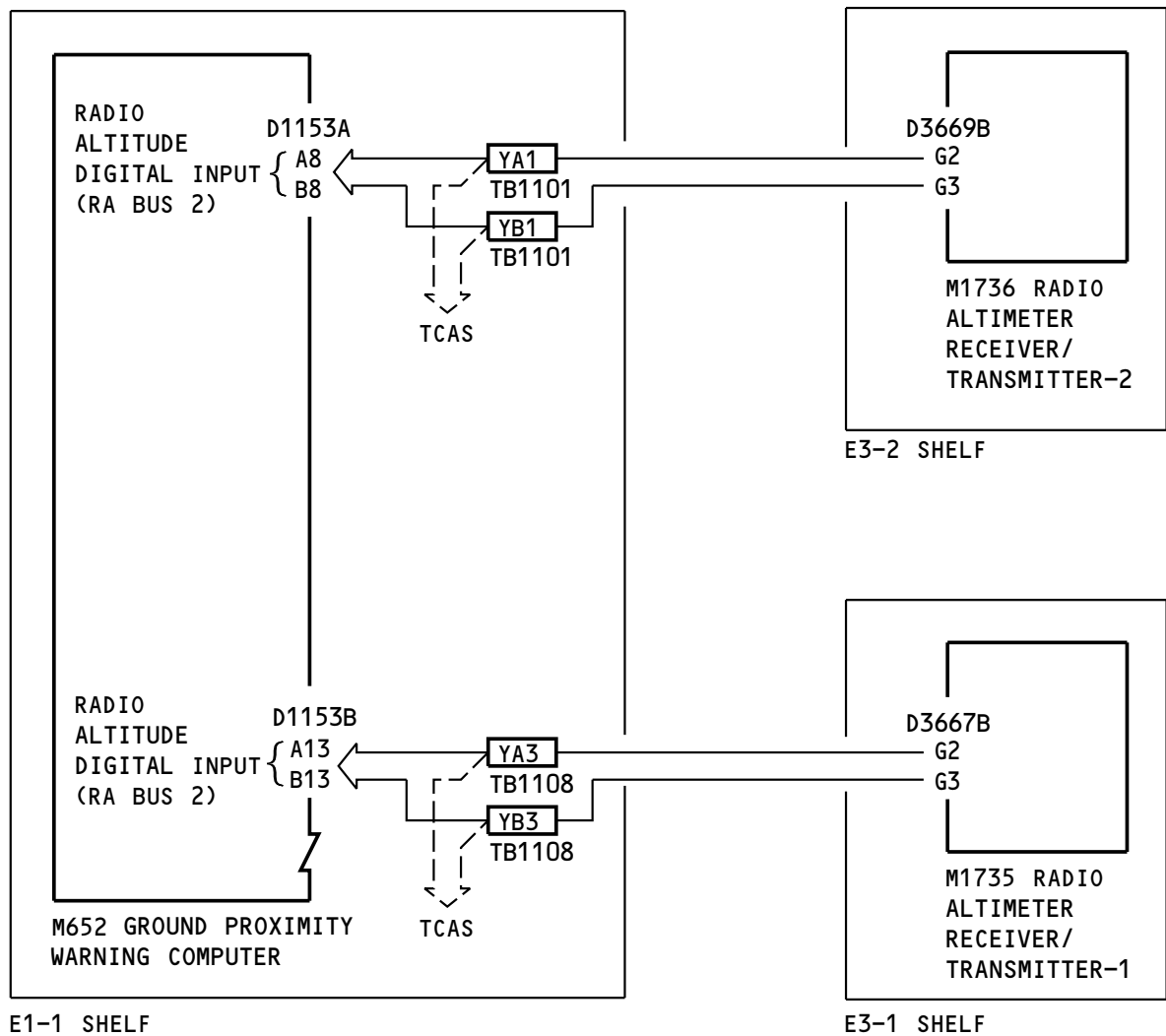
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SIA ALL

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737-600/700/800/900
FAULT ISOLATION MANUAL



SSM 34-33-11
34-33-21
34-49-11

WDM 34-33-11
34-33-21

H96022 S0006744400_V1

Enhanced GPWS Radio Altimeter Data Buses Simplified Schematic
Figure 303/34-46-00-990-803

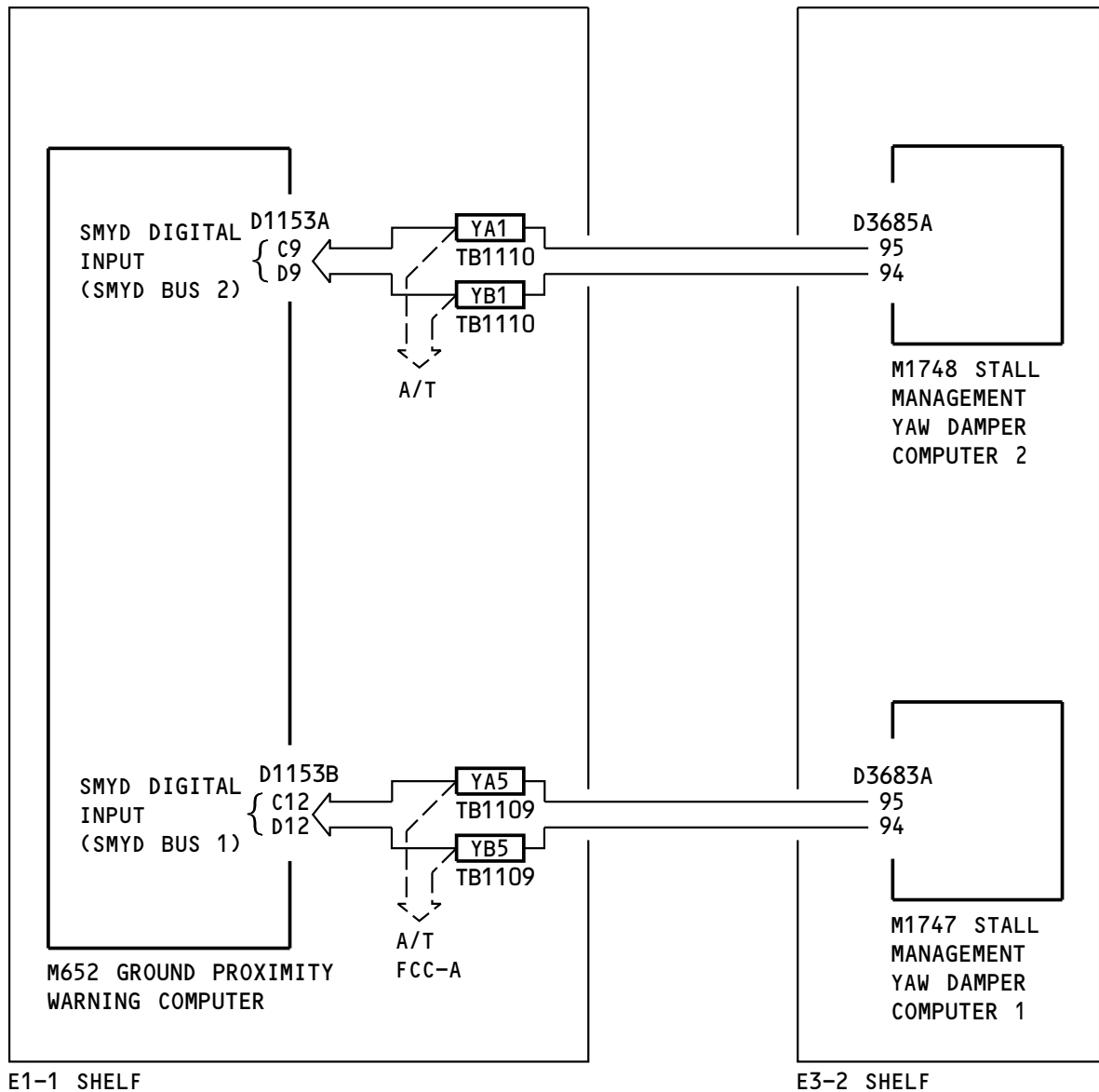
EFFECTIVITY
SIA ALL

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SSM 27-32-12
27-32-22
34-49-11

WDM 27-32-12
27-32-22

H95997 S0006744401_V1

Enhanced GPWS SMYD Data Buses Simplified Schematic
Figure 304/34-46-00-990-804

EFFECTIVITY
SIA ALL

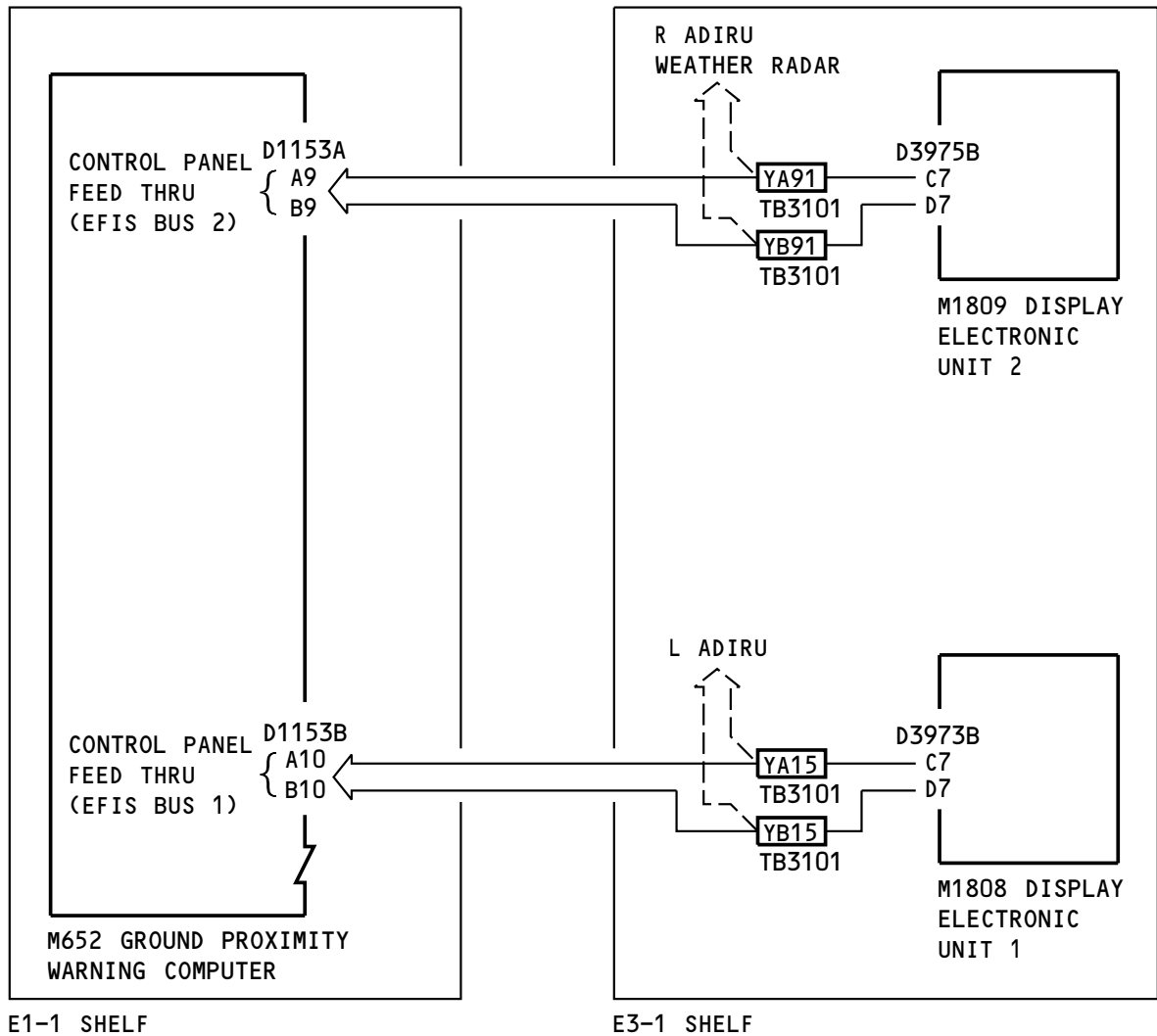
34-46 TASK SUPPORT

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SSM 31-62-15
31-62-25
34-49-11

WDM 31-62-15
31-62-25

H95993 S0006744402_V1

Enhanced GPWS DEU Data Buses Simplified Schematic
Figure 305/34-46-00-990-805

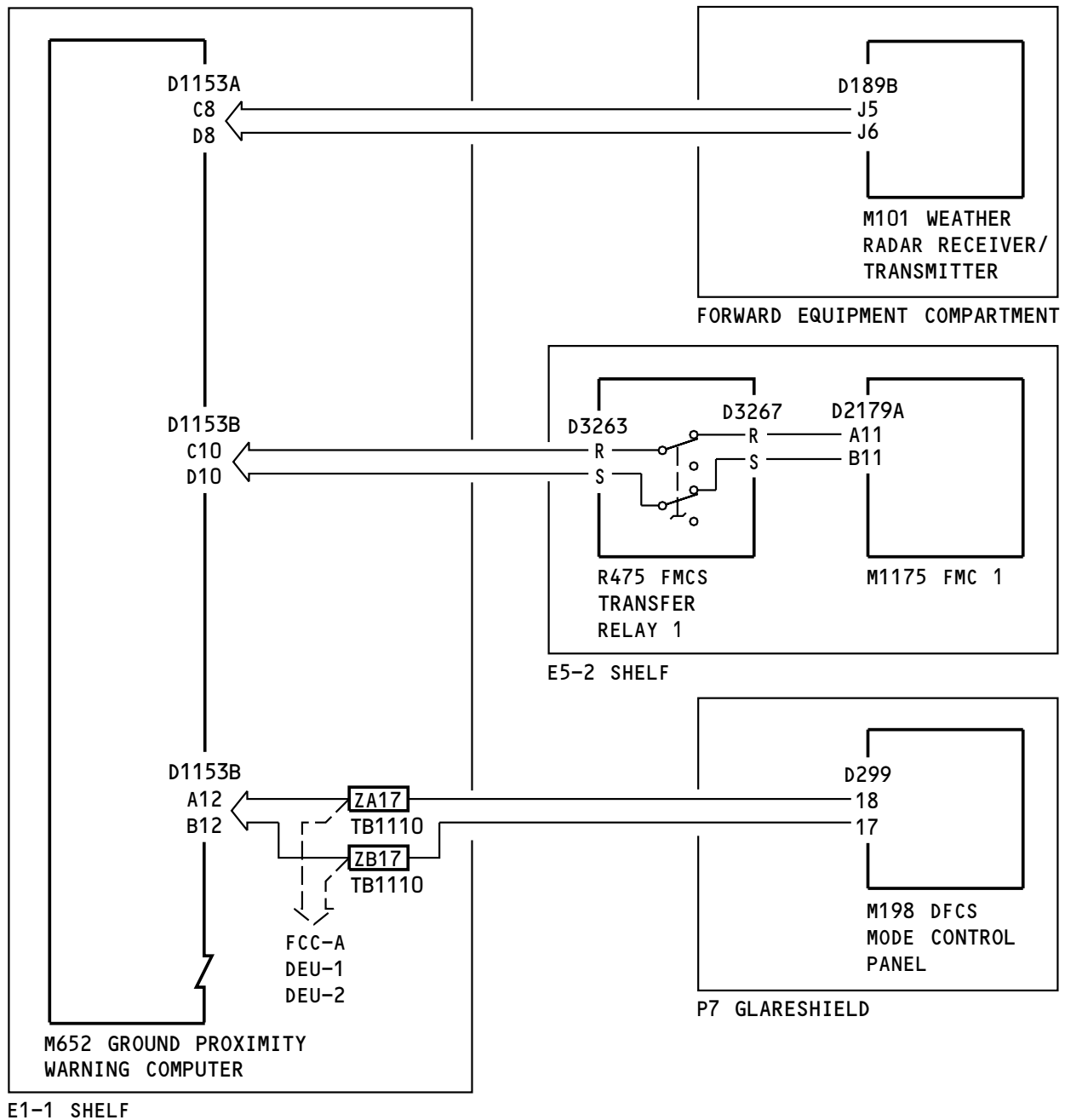
EFFECTIVITY
SIA ALL

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SSM 22-11-51	WDM 22-11-51
34-41-11	34-41-11
34-49-11	34-49-11
34-61-15	34-61-15

H95947 S0006744403_V1

Enhanced GPWS MCP, FMC, and Weather Radar Hazard Buses Simplified Schematic
Figure 306/34-46-00-990-806

EFFECTIVITY
SIA ALL

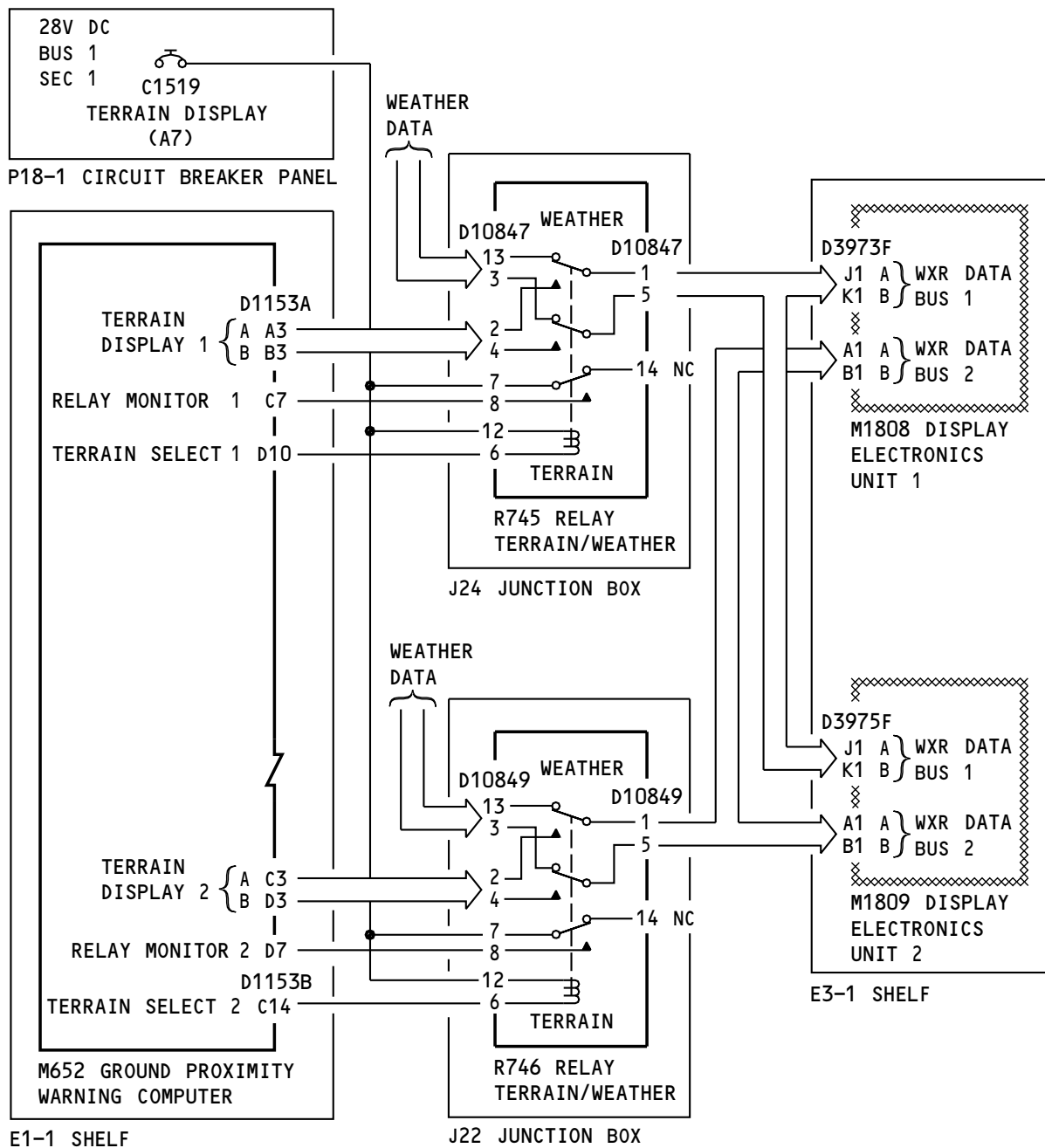
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SSM 34-49-11

WDM 34-49-11

H96857 S0006744404_V1

Enhanced GPWS Terrain Display Simplified Schematic
Figure 307/34-46-00-990-807

EFFECTIVITY
SIA ALL

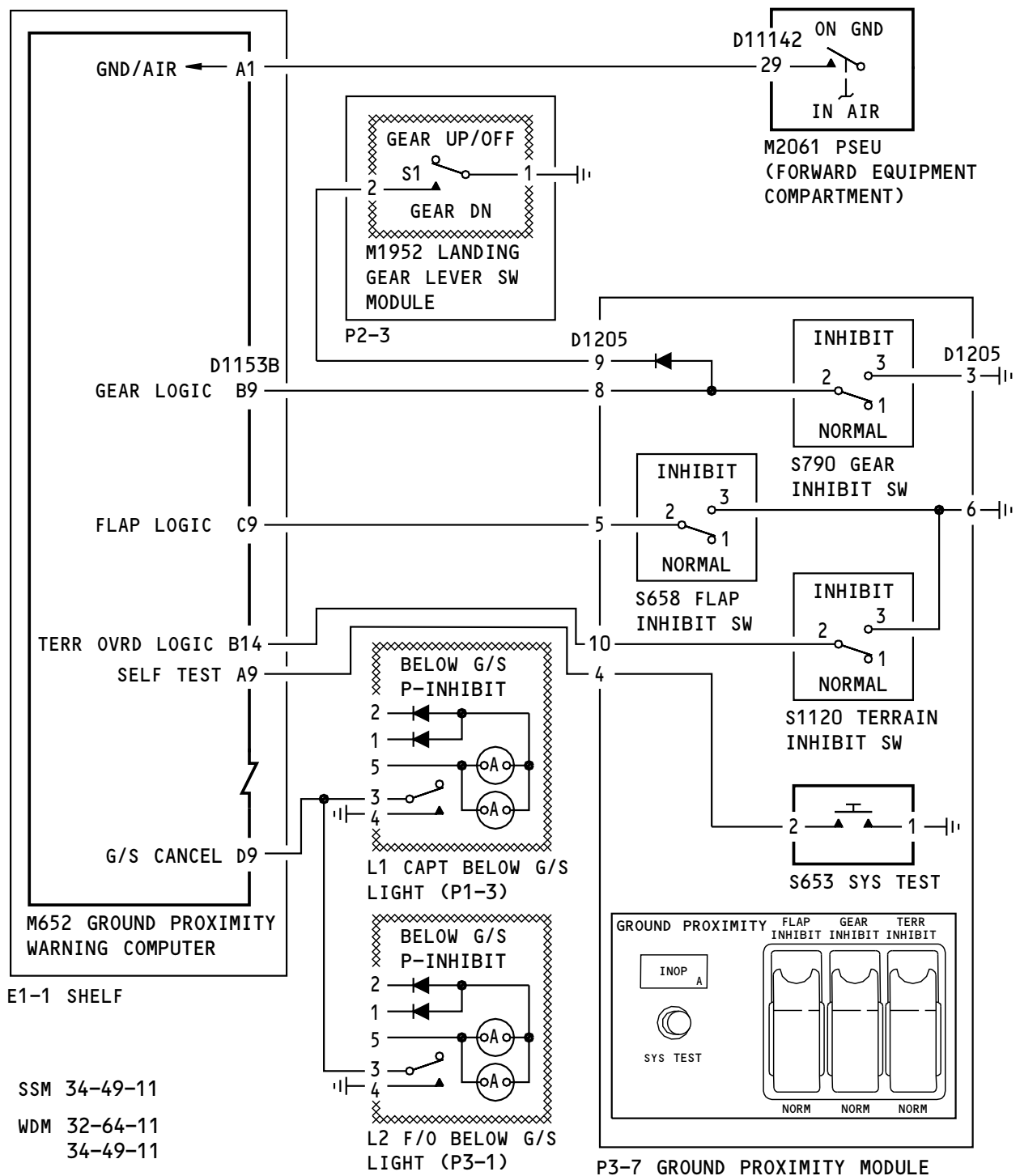
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Enhanced GPWS Discrete Inputs Simplified Schematic
Figure 308/34-46-00-990-808

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801. VOR/Marker Beacon Receiver BITE Procedure

(Figure 201)

A. General

- (1) You do the VOR/Marker Beacon receiver BITE test at the front panel of the receiver.
- (2) The VOR system has two receivers. Receiver 1 is on the E1-2 shelf and receiver 2 is on the E1-4 shelf in the electronic equipment compartment.
- (3) The VOR/marker beacon receiver BITE test does a self check for existing internal and external faults. Results of the BITE test are displayed on the front panel of the VOR/marker beacon receiver.

B. BITE Procedure

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- (1) Push and release the TEST button on the front panel of the VOR/marker beacon receiver to start the BITE test.
 - (a) Make sure that these indications occur:
 - 1) The red lights for the LRU STATUS and the CONTROL FAIL come on.
 - 2) The LRU STATUS light changes to green after 3 seconds.
 - 3) Both lights go off after 6 seconds.
 - 4) The green LRU STATUS light comes on after 15 seconds.

SIA ALL

- (b) Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance messages.

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
VOR/MKR RCVR	CONTROL FAIL	34-51 TASK 812
VOR/MKR RCVR	LRU STATUS	34-51 TASK 811

———— **END OF TASK** ————

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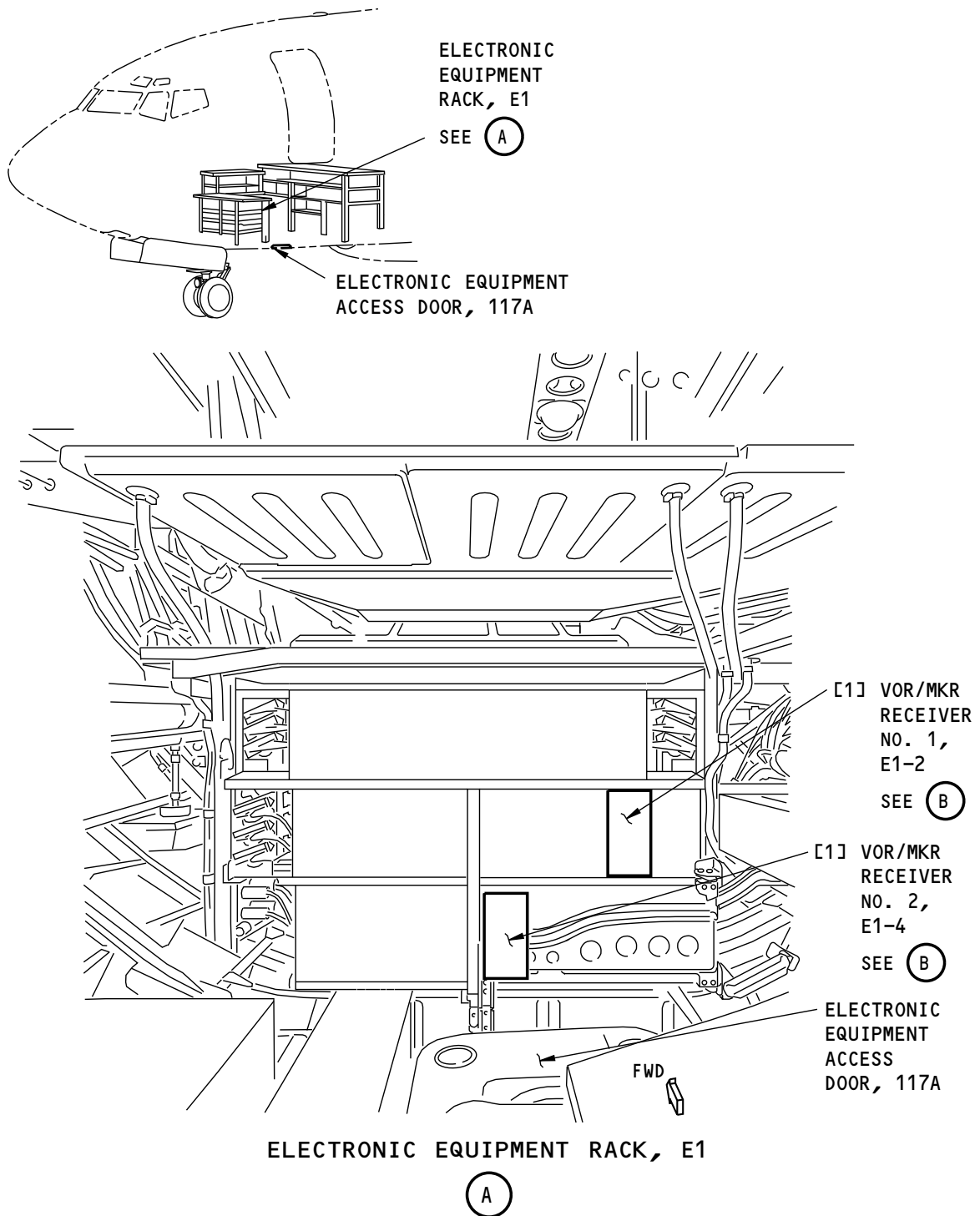
34-51 TASK 801

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G58751 S0006744410_V1

VOR/MKR Receiver
Figure 201/34-51-00-990-803 (Sheet 1 of 2)

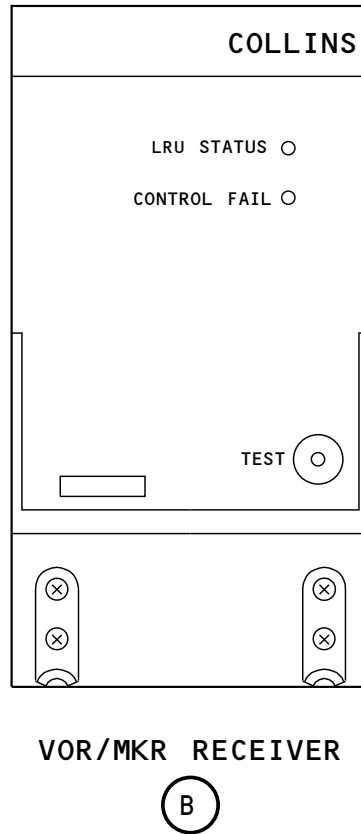
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G84459 S0006744411_V1

VOR/MKR Receiver
Figure 201/34-51-00-990-803 (Sheet 2 of 2)

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805. No Pointers and No Flags - Fault Isolation

A. Description

- (1) The VOR data goes to a No Computed Data (NCD) condition.

B. Possible Causes

- (1) VOR/marker beacon receiver, M1724 (No. 1) or M1725 (No. 2)
(2) Navigation control panel, P8-25 (captain) or P8-26 (First Officer (F/O))
(3) VOR antenna, M41
(4) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C01375	RADIO NAVIGATION VOR 2

D. Related Data

- (1) SSM 34-51-11
(2) SSM 34-51-21
(3) WDM 34-51-11
(4) WDM 34-51-21

E. Initial Evaluation

- (1) For the applicable VOR/marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
- (a) If the bearing pointers 1 and 2 do not show on the captain or F/O displays, then do the Fault Isolation Procedure below.
- (b) If the bearing pointers 1 and 2 show on the captain or F/O displays, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this check of the applicable navigation control panel:
- (a) Make sure that the navigation control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators.
- (b) If the navigation control panel display FAIL on the ACTIVE or STANDBY frequency indicators, then do these steps:
- 1) Replace the navigation control panel, do these tasks:
- Navigation Control Panel Removal, AMM TASK 34-31-52-000-801
 - Navigation Control Panel Installation, AMM TASK 34-31-52-400-801
- (c) If the navigation control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators, then continue.
- (2) Do this check of the wiring:

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- (a) For the applicable navigation control panel, do the Navigation Control Panel Removal, AMM TASK 34-31-52-000-801.
- (b) For the applicable VOR/marker beacon receiver, do the VOR/MKR Receiver Removal, AMM TASK 34-51-01-000-801.
- (c) Do a continuity check between the applicable VOR/marker beacon receiver and the navigation control panel:

	NAV CONNECTOR	VOR CONNECTOR
CAPTAIN (P8-25)	D263 pin 20 pin 21	D3623B pin B11 pin C11
F/O (P8-26)	D265 pin 20 pin 21	D3625B pin B11 pin C11

- (d) If there is no continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) For the applicable navigation control panel, do the Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
 - 3) For the applicable VOR/marker beacon receiver, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 4) For the applicable VOR/marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - 5) If the bearing pointers 1 and 2 show on the captain or F/O displays, then you corrected the fault.
 - (e) If there is continuity, then continue.
 - 1) For the applicable navigation control panel, do the Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
- (3) Use a time domain reflectometer, COM-5187, TDR test set to do an electrical check of the coaxial cable and antenna (WDM 34-51-11, WDM 34-51-21):



CAUTION

YOU MUST PUT RF ABSORBENT MATERIAL ON THE ANTENNA BEFORE YOU USE THE TDR TEST SET. YOU CAN DAMAGE THE TEST SET IF A HIGH POWER TRANSMITTER OPERATES WITHIN 500 FEET OF THE ANTENNA.

- (a) Cover the applicable VOR antenna with RF absorbent material.
- (b) Connect the TDR test set to the applicable VOR/marker beacon receiver:

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VOR-1	TDR TEST SET	VOR
	TDR TEST SET	CONNECTOR
	TDR	D3623C
	TDR	pin 1
VOR-2	TDR TEST SET	D3625C
	TDR TEST SET	D3625C
	TDR	pin 1
	TDR	pin C1

- (c) Do an electrical check of the coaxial cable and the antenna.

NOTE: The TDR test set has instructions which tell how to do the check of the cable and antenna.

- (d) Disconnect the TDR test set.

- (e) If you find a problem with the coaxial cable, then do these steps:

- 1) Replace the coaxial cable (WDM 34-51-11, WDM 34-51-21).
- 2) For the applicable VOR/marker beacon receiver, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
- 3) For the applicable VOR/marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
- 4) If the bearing pointers 1 and 2 show on the captain or F/O displays, then you corrected the fault.

- (f) If you find a problem with the antenna, do these steps:

- 1) Replace the VOR antenna, do these tasks:
 - VOR/LOC Antenna Removal, AMM TASK 34-51-02-000-801
 - VOR/LOC Antenna Installation, AMM TASK 34-51-02-400-801
- 2) For the applicable VOR/marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
- 3) If the bearing pointers 1 and 2 show on the captain or F/O displays, then you corrected the fault.

———— **END OF TASK** ————

806. No Deviation Bar - Fault Isolation

A. Description

- (1) The VOR data goes to a NCD condition.

B. Possible Causes

- (1) VOR/marker beacon receiver, M1724 (No. 1) or M1725 (No. 2)
- (2) Navigation control panel, P8-25 (captain) or P8-26 (F/O)
- (3) VOR antenna, M41
- (4) Wiring

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C01375	RADIO NAVIGATION VOR 2

D. Related Data

- (1) SSM 34-51-11
- (2) SSM 34-51-21
- (3) WDM 34-51-11
- (4) WDM 34-51-21

E. Initial Evaluation

- (1) For the applicable VOR/marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - (a) If the deviation bar does not show on the captain or F/O displays, then do the Fault Isolation Procedure below.
 - (b) If the deviation bar shows on the captain or F/O displays, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this check of the applicable navigation control panel:
 - (a) Make sure that the navigation control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators.
 - (b) If the navigation control panel display FAIL on the ACTIVE or STANDBY frequency indicators, then do these steps:
 - 1) Replace the navigation control panel, do these tasks:
 - Navigation Control Panel Removal, AMM TASK 34-31-52-000-801
 - Navigation Control Panel Installation, AMM TASK 34-31-52-400-801
 - (c) If the navigation control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators, then continue.
- (2) Do this check of the wiring:
 - (a) For the applicable navigation control panel, do the Navigation Control Panel Removal, AMM TASK 34-31-52-000-801.
 - (b) For the applicable VOR/marker beacon receiver, do the VOR/MKR Receiver Removal, AMM TASK 34-51-01-000-801.
 - (c) Do a continuity check between the applicable VOR/marker beacon receiver and navigation control panel:

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	NAV CONNECTOR	VOR CONNECTOR
CAPTAIN (P8-25)	D263 pin 20 pin 21	D3623B pin B11 pin C11
F/O (P8-26)	D265 pin 20 pin 21	D3625B pin B11 pin C11

- (d) If there is no continuity, then do these steps:
- 1) Repair the wiring.
 - 2) For the applicable navigation control panel, do the Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
 - 3) For the applicable VOR/marker beacon receiver, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 4) For the applicable VOR/marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - 5) If the deviation bar shows on the captain or F/O displays, then you corrected the fault.
- (e) If there is continuity, then continue.
- 1) For the applicable navigation control panel, do the Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
- (3) Use a time domain reflectometer, COM-5187, TDR test set to do an electrical check of the coaxial cable and antenna (WDM 34-51-11, WDM 34-51-21):



CAUTION

YOU MUST PUT RF ABSORBENT MATERIAL ON THE ANTENNA BEFORE YOU USE THE TDR TEST SET. YOU CAN DAMAGE THE TEST SET IF A HIGH POWER TRANSMITTER OPERATES WITHIN 500 FEET OF THE ANTENNA.

- (a) Cover the VOR antenna with RF absorbent material.
- (b) Connect the TDR test set to the applicable VOR/marker beacon receiver:

	TDR TEST SET TDR TEST SET	VOR CONNECTOR
VOR-1	TDR TDR	D3623C pin 1 pin C1
VOR-2	TDR TEST SET TDR TDR	D3625C pin 1 pin C1

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- (c) Do an electrical check of the coaxial cable and the antenna.

NOTE: The TDR test set has instructions which tell how to do the check of the cable and antenna.

- (d) Disconnect the TDR test set.

- (e) If you find a problem with the coaxial cable, then do these steps:

- 1) Replace the coaxial cable (WDM 34-51-11, WDM 34-51-21).
- 2) For the applicable VOR/marker beacon receiver, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
- 3) For the applicable VOR/marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
- 4) If the deviation bar shows on the captain or F/O displays, then you corrected the fault.

- (f) If you find a problem with the antenna, do these steps:

- 1) Replace the VOR antenna, do these tasks:
 - VOR/LOC Antenna Removal, AMM TASK 34-51-02-000-801
 - VOR/LOC Antenna Installation, AMM TASK 34-51-02-400-801
- 2) For the applicable VOR/marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
- 3) If the deviation bar shows on the captain or F/O displays, then you corrected the fault.

————— **END OF TASK** —————

807. VOR Frequency Shows Dashes - Fault Isolation

A. Description

- (1) There are NCD for the VOR frequency.

B. Possible Causes

- (1) VOR/Marker beacon receiver, M1724 (No. 1) or M1725 (No. 2)
- (2) Navigation control panel, P8-25 (captain) or P8-26 (F/O)
- (3) Display Electronic Unit (DEU), M1808 (No. 1) or M1809 (No. 2)
- (4) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C01375	RADIO NAVIGATION VOR 2

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D. Related Data

- (1) WDM 34-51-11
- (2) WDM 34-51-21
- (3) SSM 34-51-11
- (4) SSM 34-51-21

E. Initial Evaluation

- (1) For the applicable VOR/Marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - (a) If the frequency show dashes on the captain or F/O displays, then do the Fault Isolation Procedure below.
 - (b) If the frequency do not shows dashes on the captain or F/O displays, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this check of the applicable NAV control panel:
 - (a) Make sure that the NAV control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators.
 - (b) If the NAV control panel does display FAIL on the ACTIVE or STANDBY frequency indicators, then do these steps:
 - 1) Replace the navigation control panel, do these tasks:
 - Navigation Control Panel Removal, AMM TASK 34-31-52-000-801
 - Navigation Control Panel Installation, AMM TASK 34-31-52-400-801
 - 2) For the applicable VOR/Marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - 3) If the VOR frequency do not show dashes on the display, then you corrected the fault.
 - (c) If the NAV control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators, then continue.
- (2) Do this check of the applicable DEU:
 - (a) Do the DEU Self-Test Procedure, 31-62 TASK 802.
 - (b) If the DEU shows FAILED, then do these steps:
 - 1) Replace the DEU, do these tasks:
 - Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
 - Display Electronic Unit Installation, AMM TASK 31-62-21-400-801
 - 2) For the applicable VOR/Marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - 3) If the VOR frequency do not show dashes on the display, then you corrected the fault.
 - (c) If the DEU shows PASSED, then continue.
- (3) Do this check of the wiring between the VOR/Marker beacon receiver and the NAV control panel:
 - (a) For the applicable NAV control panel, do the Navigation Control Panel Removal, AMM TASK 34-31-52-000-801.

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- (b) For the applicable VOR/Marker beacon receiver, do the VOR/MKR Receiver Removal, AMM TASK 34-51-01-000-801.
- (c) Do a continuity check between the VOR/Marker beacon receiver and the NAV control panel:

	NAV CONNECTOR	VOR CONNECTOR
VOR 1	D263	D3623B
	pin 20	pin B11
	pin 21	pin C11
VOR 2	D265	D3625B
	pin 20	pin B11
	pin 21	pin C11

- (d) If there is no continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) For the applicable NAV control panel, do the Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
 - 3) For the applicable VOR/Marker beacon receiver, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 4) For the applicable VOR/Marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - 5) If the VOR frequency do not show dashes on the display, then you corrected the fault.
- (e) If there is continuity, then continue.
 - 1) For the applicable NAV control panel, do the Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
- (4) Do this check of the wiring between the DEU and the VOR/Marker beacon receiver:
 - (a) For the applicable DEU, do the Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (b) Do a check for an open circuit between the DEU and the VOR/Marker beacon receiver:

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VOR 1	DEU CONNECTOR D3973B	VOR CONNECTOR D3623B
	pin C3	pin B13
	pin D3	pin C13
VOR 2	D3975B	D3623B
	pin C3	pin B13
	pin D3	pin C13
VOR 2	D3973E	D3625B
	pin C3	pin B13
	pin D3	pin C13
VOR 2	D3975E	D3625B
	pin C3	pin B13
	pin D3	pin C13

- (c) If there is an open circuit, then do these steps:
- 1) Repair the wiring.
 - 2) For the applicable VOR/Marker beacon receiver, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 3) For the applicable DEU, do the Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) For the applicable VOR/Marker beacon receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - 5) If the VOR frequency do not show dashes on the display, then you corrected the fault.

————— **END OF TASK** —————

809. Audio Tone Problem - Fault Isolation

A. Description

- (1) Audio tone does not occur or is weak.

B. Possible Causes

- (1) VOR/marker beacon receiver, M1724 (No. 1) or M1725 (No. 2)
- (2) Remote Electronics Unit (REU), M1353
- (3) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C01375	RADIO NAVIGATION VOR 2

D. Related Data

- (1) SSM 34-51-11
- (2) SSM 34-51-21
- (3) WDM 34-51-11
- (4) WDM 34-51-21

E. Initial Evaluation

- (1) Do the VOR System - System Test, AMM TASK 34-51-00-730-801.
 - (a) If there is no audio tone or the audio tone is weak, then do the Fault Isolation Procedure below.
 - (b) If the audio tone is normal, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this check of the applicable VOR/marker beacon receiver:
 - (a) Do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - (b) If the LCD display on the VOR/marker beacon receiver shows VOR TEST COMPLETE FAILURES, then follow the BITE procedure to correct the failure.
 - (c) If the LCD display on the VOR/marker beacon receiver shows VOR TEST COMPLETE NO FAILURES, then continue.
- (2) Do this check of the wiring:
 - (a) Do the Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
 - (b) For the applicable VOR/marker beacon receiver, do the VOR/MKR Receiver Removal, AMM TASK 34-51-01-000-801.
 - (c) Do a continuity check between the applicable VOR/marker beacon receiver and the REU:

	VOR CONNECTOR	REU CONNECTOR
VOR 1	D3623B	D2501A
	pin B7	pin K13
	pin C7	pin J13
VOR 2	D3625B	D2501A
	pin B7	pin D15
	pin C7	pin C15

- (d) If there is no continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) Do the Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
 - 3) For the applicable VOR/marker beacon receiver, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 4) Do the VOR System - System Test, AMM TASK 34-51-00-730-801.

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- 5) If the audio tone is normal, then you corrected the fault.
- (e) If there is continuity, then continue.
 - 1) For the applicable VOR/marker beacon receiver, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
- (3) Replace the REU, M1353, do these tasks:
 - Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801
 - Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802
- (a) Do the VOR System - System Test, AMM TASK 34-51-00-730-801.
- (b) If the audio tone is normal, then you corrected the fault.

———— **END OF TASK** ————

810. TO/FROM Indication Problem - Fault Isolation

A. Description

- (1) The TO/FROM indication does not show on the display.

B. Possible Causes

- (1) VOR/marker beacon receiver, M1724 (No. 1) or M1725 (No. 2)
- (2) REU, M1353
- (3) DEU, M1808 (No. 1) or M1809 (No. 2)
- (4) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C01375	RADIO NAVIGATION VOR 2

D. Related Data

- (1) SSM 34-51-11
- (2) SSM 34-51-21
- (3) WDM 34-51-11
- (4) WDM 34-51-21

E. Initial Evaluation

- (1) Do the VOR System - System Test, AMM TASK 34-51-00-730-801.
 - (a) If the TO/FROM indication do not show on the display, then do the Fault Isolation Procedure below.
 - (b) If the TO/FROM indication is normal, then there was an intermittent fault.

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F. Fault Isolation Procedure

- (1) Do this check of the applicable VOR/marker beacon receiver:
 - (a) Do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - (b) If the LCD display on the VOR/marker beacon receiver shows VOR TEST COMPLETE FAILURES, then follow the BITE procedure to correct the failure.
 - (c) If the LCD display on the VOR/marker beacon receiver shows VOR TEST COMPLETE NO FAILURES, then continue.
- (2) Do this check of the wiring between the DEU and the VOR/marker beacon receiver:
 - (a) For the applicable DEU, do the Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (b) For the applicable VOR/marker beacon receiver, do the VOR/MKR Receiver Removal, AMM TASK 34-51-01-000-801.
 - (c) Do a continuity check between the applicable VOR/marker beacon receiver and DEU:

	DEU CONNECTOR	VOR CONNECTOR
VOR 1	D3973B	D3623B
	pin C3	pin B13
	pin D3	pin C13
	D3975B	D3623B
	pin C3	pin B13
	pin D3	pin C13
VOR 2	D3973E	D3625B
	pin C3	pin B13
	pin D3	pin C13
	D3975E	D3625B
	pin C3	pin B13
	pin D3	pin C13

- (d) If there is no continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) For the applicable VOR/marker beacon receiver, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 3) For the applicable DEU, do the Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) Do the VOR System - System Test, AMM TASK 34-51-00-730-801.
 - 5) If the TO/FROM indication shows on the display, then you corrected the fault.
- (e) If there is continuity, then continue.
 - 1) For the applicable VOR/marker beacon receiver, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 2) For the applicable DEU, do the Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

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- (3) Do this check of the applicable DEU:
 - (a) Do the DEU Self-Test Procedure, 31-62 TASK 802.
 - (b) If the DEU shows FAILED, then do these tasks:
 - 1) Replace the DEU, do these tasks:
 - Display Electronic Unit Removal, AMM TASK 31-62-21-000-801
 - Display Electronic Unit Installation, AMM TASK 31-62-21-400-801
 - 2) Do the VOR System - System Test, AMM TASK 34-51-00-730-801.
 - 3) If the TO/FROM indication shows on the display, then you corrected the fault.

END OF TASK

811. VOR/Marker Beacon Receiver Failed - Fault Isolation

A. Description

- (1) The task is for this maintenance message:
 - (a) LRU STATUS
- (2) The VOR/marker beacon receiver has an internal failure.

B. Possible Causes

- (1) VOR/marker beacon receiver M1724 (No. 1) or M1725 (No. 2).

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C01375	RADIO NAVIGATION VOR 2

D. Related Data

- (1) (SSM 34-51-11).
- (2) (SSM 34-51-21).
- (3) (WDM 34-51-11).
- (4) (WDM 34-51-21).

E. Initial Evaluation

- (1) Do this task: VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - (a) If the red LRU STATUS light comes on after approximately 15 seconds, then do the Fault Isolation Procedure below.
 - (b) If the green LRU STATUS light comes on after approximately 15 seconds, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Replace the VOR/marker beacon receiver, M1724 (No. 1) or M1725 (No. 2) as applicable.
These are the tasks:

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VOR/MKR Receiver Removal, AMM TASK 34-51-01-000-801,
VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.

- (a) If the green LRU STATUS light comes on after approximately 15 seconds, then you corrected the fault.

————— **END OF TASK** —————

812. VOR Tuning Port-B Missing Input - Fault Isolation

A. Description

- (1) The task is for this maintenance message:
(a) CONTROL FAIL
(2) VOR receives no input data from the navigation control panel.

B. Possible Causes

- (1) Wiring problem.
(2) Navigation control panel, P8-25 (captain's) or P8-26 (first officer's).

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C01375	RADIO NAVIGATION VOR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

D. Related Data

- (1) (SSM 34-51-11).
(2) (WDM 34-51-11).

E. Initial Evaluation

- (1) Do this task: VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
(a) If the red CONTROL FAIL light comes on after approximately 15 seconds, then do the Fault Isolation Procedure below.
(b) If the green CONTROL FAIL light comes on after approximately 15 seconds, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this check of the navigation control panel:
(a) Make sure that the navigation control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators.
(b) If the navigation control panel display FAIL on the ACTIVE or STANDBY frequency indicators, then do these steps:
1) Replace the navigation control panel, P8-25 (captain's) or P8-26 (first officer's).

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These are the tasks:

Navigation Control Panel Removal, AMM TASK 34-31-52-000-801,

Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.

- 2) Do this task: VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
- 3) If the green CONTROL FAIL light comes on after approximately 15 seconds, then you corrected the fault.
- (c) If the navigation control panel does not display FAIL on the ACTIVE or STANDBY frequency indicators, then continue.
- (2) Do this check of the wiring:
 - (a) Remove the navigation control panel. To remove it, do this task: Navigation Control Panel Removal, AMM TASK 34-31-52-000-801.
 - (b) Remove the VOR/marker beacon receiver. To remove it, do this task: VOR/MKR Receiver Removal, AMM TASK 34-51-01-000-801.
 - (c) For the applicable panel, do a continuity check between these pins of the connector for the VOR receiver and the connector for the applicable navigation control panel:

	NAV CONNECTOR	VOR CONNECTOR
CAPTAIN (P8-25)	D263	D3623B
	pin 20	pin B11
	pin 21	pin C11
FIRST OFFICER (P8-26)	D265	D3625B
	pin 20	pin B11
	pin 21	pin C11

- (d) If there is not continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the navigation control panel. To install it, do this task: Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
 - 3) Re-install the VOR/marker beacon receiver. To install it, do this task: VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
 - 4) Do this task: VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - 5) If the green CONTROL FAIL light comes on after approximately 15 seconds, then you corrected the fault.

————— **END OF TASK** —————

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801. Air Traffic Control (ATC) Transponder BITE Procedure

A. General

- (1) You do the Air Traffic Control (ATC) Transponder BITE test from the ATC Transponder Front Panel. The ATC Transponder BITE test is a real-time check for faults in the ATC system. The BITE test checks ATC Transponder Circuitry and the inputs of the systems that interface with the ATC Transponder.

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- (2) You can also do a check of fault history. The fault history will show all problems that occurred during the last ten flight legs.

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- (3) If the ATC Transponder BITE test detects a fault, it will turn on the applicable light on the Front Panel of the ATC Transponder. There is a related Maintenance Message.

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- (4) The Maintenance Messages for the lights are as follow:

- (a) XPDR FAIL
- (b) CNTL PNL
- (c) TOP ANT
- (d) BOT ANT
- (e) ALT SIG

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B. BITE Procedure

- (1) Momentarily push the PUSH TO TEST switch on the Front Panel of the applicable ATC Transponder
- (a) Make sure all of the fault lights come ON for 3 seconds and then go OFF.
 - (b) If the green XPDR PASS light stays ON, then the BITE test passed.
 - (c) If a different light stays ON, other than the green XPDR PASS light, then refer to the Maintenance Message table to find the fault isolation procedure for the applicable Maintenance Message.

NOTE: The XPDR PASS light or the fault light will stay On for 10 seconds after you release the TEST switch and then go OFF.

- (2) To see if there are any faults in fault history, momentarily push the PUSH TO TEST switch again while the XPDR PASS light or a fault light is ON.

NOTE: This will show any Maintenance Messages from the next previous flight leg. Push the PUSH TO TEST switch again and again to show Maintenance Messages from other previous flight legs. The ATC will keep fault history data for 10 previous flight legs.

- (a) If a fault light comes ON, then refer to the Maintenance Message table to find the fault isolation procedure for the applicable Maintenance Message.

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ATC XPDR - 1 (L)	ALT SIG	34-53 TASK 804
ATC XPDR - 1 (L)	BOT ANT	34-53 TASK 808
ATC XPDR - 1 (L)	CNTL PNL	34-53 TASK 810

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LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ATC XPDR - 1 (L)	TOP ANT	34-53 TASK 806
ATC XPDR - 1 (L)	XPDR FAIL	34-53 TASK 802
ATC XPDR - 2 (R)	ALT SIG	34-53 TASK 805
ATC XPDR - 2 (R)	BOT ANT	34-53 TASK 809
ATC XPDR - 2 (R)	CNTL PNL	34-53 TASK 811
ATC XPDR - 2 (R)	TOP ANT	34-53 TASK 807
ATC XPDR - 2 (R)	XPDR FAIL	34-53 TASK 803

———— **END OF TASK** ————

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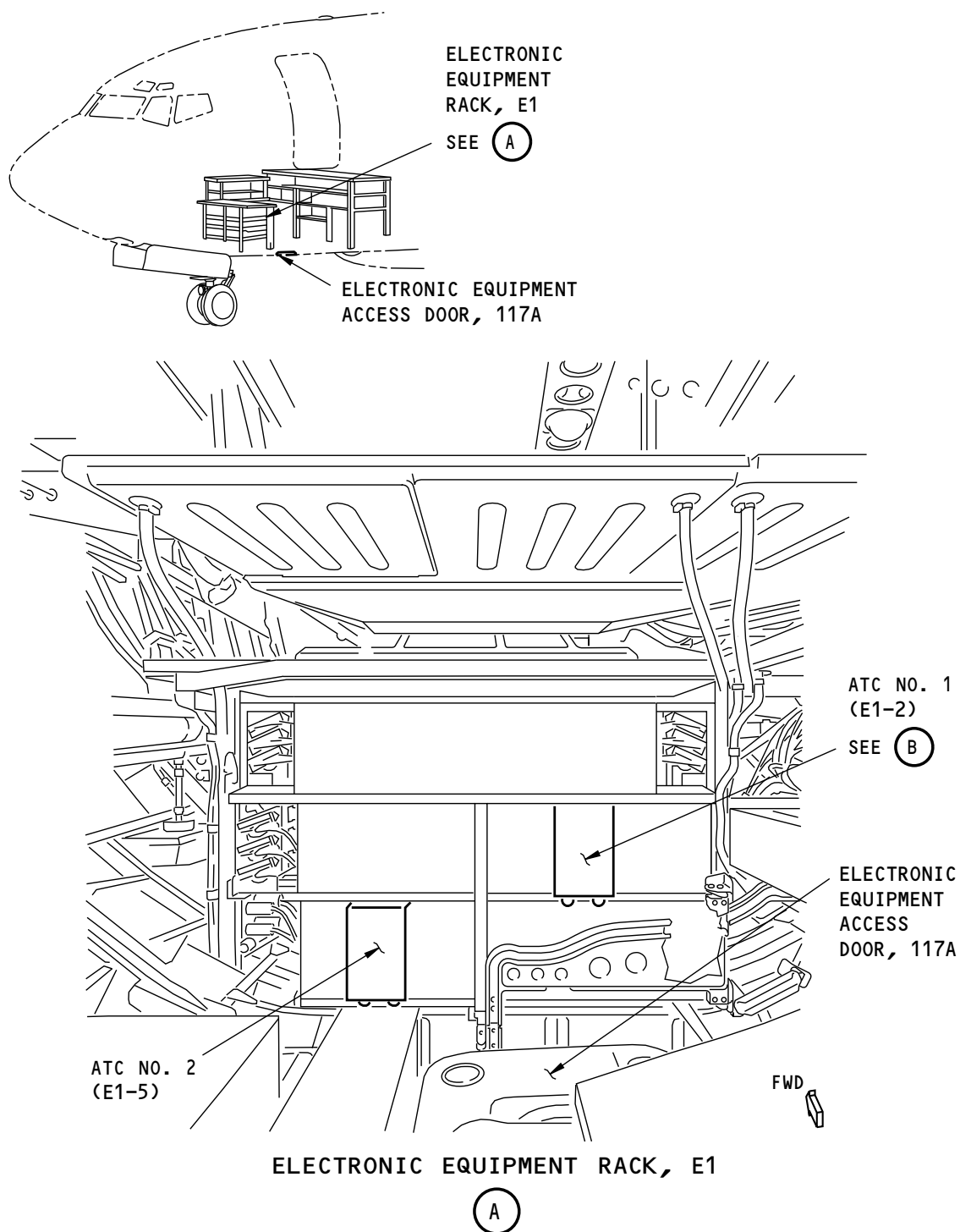
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G44732 S0006744459_V1

ATC Transponder
Figure 201/34-53-00-990-804 (Sheet 1 of 2)

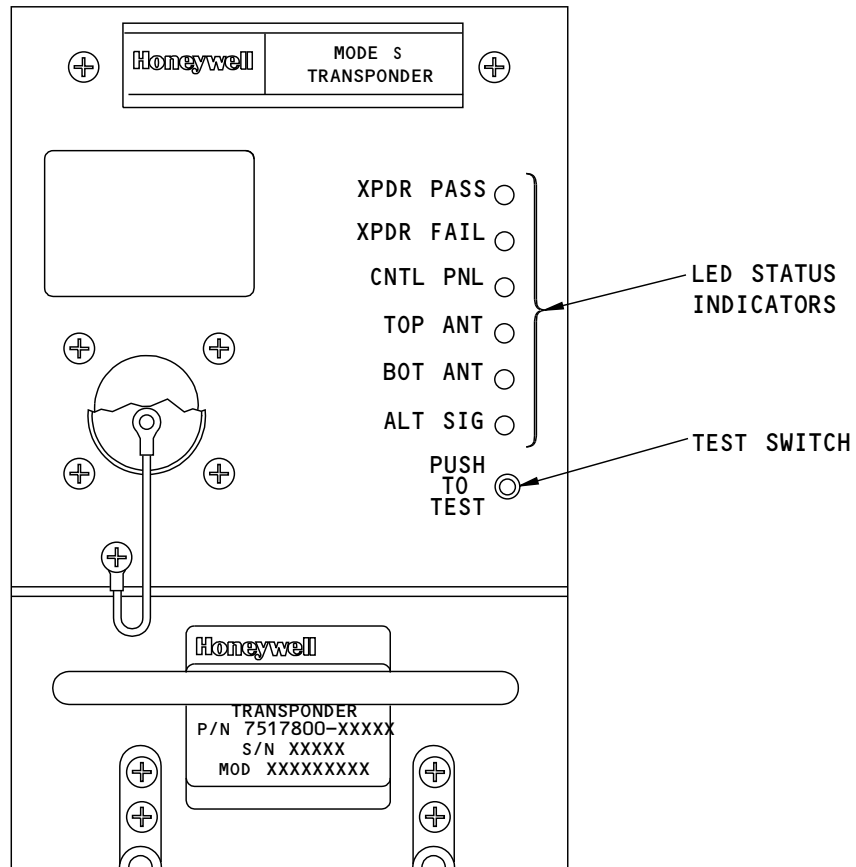
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ATC TRANSPONDER
(B)

U62465 S0000200443_V1

ATC Transponder
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34-53 TASK 801



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802. Left Air Traffic Control (ATC) Transponder Internal Fault - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) XPDR FAIL
- (2) The left ATC transponder BITE has detected an internal fault.

B. Possible Causes

- (1) Left ATC transponder, M163.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

D. Related Data

- (1) (WDM 34-53-11).
- (2) (SSM 34-53-11).

E. Initial Evaluation

- (1) For the left ATC, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If the BITE test passed, then there was an intermittent fault.
 - (b) If the maintenance message shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the left ATC transponder, M163.

These are the tasks:

ATC Transponder Removal, AMM TASK 34-53-02-020-801,
ATC Transponder Installation, AMM TASK 34-53-02-400-801.

 - (a) For the left ATC, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - 1) If the BITE test passed, then you corrected the fault.

————— **END OF TASK** —————

803. Right Air Traffic Control (ATC) Transponder Internal Fault - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) XPDR FAIL
- (2) The right ATC transponder BITE has detected an internal fault.

B. Possible Causes

- (1) Right ATC transponder, M381.

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C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2

D. Related Data

- (1) (WDM 34-53-21).
(2) (SSM 34-53-21).

E. Initial Evaluation

- (1) For the right ATC, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
(a) If the BITE test passed, then there was an intermittent fault.
(b) If the maintenance message shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the right ATC transponder, M381.
These are the tasks:
ATC Transponder Removal, AMM TASK 34-53-02-020-801,
ATC Transponder Installation, AMM TASK 34-53-02-400-801.
(a) For the right ATC, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
1) If the BITE test passed, then you corrected the fault.

————— **END OF TASK** —————

804. Left Air Traffic Control (ATC) Transponder, Air Data Altitude Problem - Fault Isolation

A. Description

- (1) This task is for this Maintenance Message:
(a) ALT SIG
(2) The L ATC Transponder has found a problem with the Air Data Inertial Reference Unit (ADIRU) data input.

B. Possible Causes

- (1) L ADIRU, M1749
(2) Wiring
(3) L ATC Transponder, M163

C. Circuit Breakers

- (1) These are the Circuit Breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

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CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

D. Related Data

- (1) WDM 34-53-11
- (2) WDM 34-21-14
- (3) SSM 34-21-14

E. Initial Evaluation

- (1) For the L ATC Transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If the BITE test passed, then there was an intermittent problem.
 - (b) If the Maintenance Message shows, then do the Fault Isolation Procedure.

F. Fault Isolation Procedure

- (1) Do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the Air Data Inertial Reference System (ADIRS) BITE shows a CURRENT STATUS fault, then go to the applicable Fault Isolation Procedure for the Maintenance Messages to correct the problem.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If the ADIRS BITE does not show CURRENT STATUS faults, then continue.
- (2) Do this check of the Wiring:
 - (a) Remove the L ATC Transponder, M163. This is the task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
 - (b) Remove the L ADIRU, M1749. This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (c) Do a Wiring check between the E1-1 Shelf, Connector D149A and E5-2 Shelf, Connector D3687A (WDM 34-21-14, WDM 34-53-11):

ATC TRANSPONDER D149A	L ADIRU D3687A
pin H7	pin A9
pin J7	pin B9

- (d) If you find a problem with the Wiring, then do these steps:
 - 1) Repair the Wiring as follows: SWPM 20-10-13.
 - 2) Install the L ATC Transponder, M163. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - 3) Install the L ADIRU, M1749. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 4) Do the Repair Confirmation at the end of this task.
- (e) If you do not find a problem with the Wiring, then continue.
 - 1) Install the L ADIRU, M1749. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.

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- (3) Install a new L ATC Transponder, M163. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.

- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the L ATC Transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.

- (a) If the BITE test passed you corrected the problem.

- (b) If the problem still exists, continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

805. R Air Traffic Control (ATC) Transponder, Air Data Altitude Problem - Fault Isolation

A. Description

- (1) This task is for this Maintenance Message:

- (a) ALT SIG

- (2) The R ATC Transponder has found a problem with the ADIRU data input.

B. Possible Causes

- (1) R ADIRU, M1752

- (2) Wiring

- (3) R ATC Transponder, M381

C. Circuit Breakers

- (1) These are the Circuit Breakers related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC
D	14	C00188	ATC 2

D. Related Data

- (1) WDM 34-53-21

- (2) WDM 34-21-24

- (3) SSM 34-21-24

- (4) SSM 34-53-21

E. Initial Evaluation

- (1) For the R ATC Transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.

- (a) If the BITE test passed, then there was an intermittent problem.

- (b) If the Maintenance Message shows, then do the Fault Isolation Procedure.

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F. Fault Isolation Procedure

- (1) Do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If the ADIRS BITE shows a CURRENT STATUS fault, then go to the applicable Fault Isolation task for the Maintenance Message to correct the problem.
 - 1) Do the Repair Confirmation at the end of this task.
 - (b) If the ADIRS BITE does not show CURRENT STATUS faults, then continue.
- (2) Do this check of the Wiring:
 - (a) Remove the R ATC Transponder, M381. This is the task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
 - (b) Remove the R ADIRU, M1752. This is the task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.
 - (c) Do a Wiring check between the E1-5 Shelf, Connector D155A and E5-2 Shelf, Connector D3693A (WDM 34-21-24, WDM 34-53-21):

ATC TRANSPONDER	R ADIRU
D155A	D3693A
pin H7	pin A9
pin J7	pin B9

- (d) If you find a problem with the Wiring, then do these steps:
 - 1) Repair the Wiring as follows: SWPM 20-10-13.
 - 2) Install the R ATC Transponder, M381. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - 3) Install the R ADIRU, M1752. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - 4) Do the Repair Confirmation at the end of this task.
 - (e) If you do not find a problem with the Wiring, then continue.
 - 1) Install the R ADIRU, M1752. This is the task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
 - (3) Install a new R ATC Transponder, M381. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the R ATC Transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If the BITE test passed, then you corrected the problem.
 - (b) If the problem still exists, continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

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806. L Air Traffic Control (ATC) Transponder, Top ATC Antenna Problem - Fault Isolation

A. Description

- (1) This task is for this Maintenance Message:
 - (a) TOP ANT

NOTE: If the XPDR P/F light comes on red and a second light is also on, then the maintenance message is for the second light.
- (2) The L ATC Transponder BITE found a defective top ATC Antenna or a problem in the Transponder Circuitry.

B. Possible Causes

- (1) Wiring
- (2) ATC Antenna Switch, S942
- (3) ATC top Antenna, M1406
- (4) L ATC Transponder, M163

C. Circuit Breakers

- (1) These are the Circuit Breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	14	C01194	ATC ANT SWITCH

D. Related Data

- (1) WDM 34-53-31
- (2) SSM 34-53-31

E. Initial Evaluation

- (1) For the L ATC Transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If the BITE test passed, there was an intermittent problem.
 - (b) If the Maintenance Message shows, then continue.
- (2) Switch to the R ATC Transponder from the P8-29 ATC control panel in the cockpit:
 - (a) If the Maintenance Message does not show, then do step (2) of the Fault Isolation Procedure.
 - (b) If the Maintenance Messages shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do a Wiring check on the coaxial wiring between the L ATC Transponder to the top ATC antenna. To find a list of applicable tools, do these tasks:
 - Coaxial Cable Inspection, AMM TASK 20-10-72-210-801
 - Coaxial Cable and Antenna System Inspection with a Frequency Domain Reflectometer, AMM TASK 20-10-72-200-801

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- (a) Use a Time Domain Reflectometer (TDR) or Frequency Domain Reflectometer (FDR) Test Set to do an electrical check of the Coaxial Cable between the left ATC transponder and Top ATC Antenna:
- 1) Remove the left ATC transponder. This is the task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
 - 2) Connect the TDR or FDR Test Set at pin C71 of connector D149A at the E1-2 Shelf (WDM 34-53-31).
 - 3) Do an electrical check of the Coaxial Cable and the top ATC antenna.
NOTE: The TDR and FDR Test sets have instructions which tell how to do the check of the Coax Cable and TCAS Top Antenna.
 - 4) Disconnect the TDR or FDR Test Set.
 - 5) Re-install the ATC Transponder. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
- (b) If you find a problem with the Coaxial Cable, then do these steps:
- 1) Replace the Coaxial Cable (WDM 34-53-31).
 - 2) Do the Repair Confirmation at the end of this task.
- (c) If you did not find a problem in the coaxial wiring, then continue.
- (2) Do this check of the electrical bonding:
- (a) Remove one bolt from the top ATC antenna.
- (b) Measure the resistance between the ATC antenna baseplate and the airplane skin with an intrinsically safe approved bonding meter, COM-1550.
NOTE: Use the empty bolt hole to get access to the antenna baseplate.
- 1) Make sure the resistance is less than 0.001 ohm.
- (c) Install the bolt that was removed.
- (3) Replace the Left ATC Transponder, M163. These are the tasks:
- ATC Transponder Removal, AMM TASK 34-53-02-020-801
 - ATC Transponder Installation, AMM TASK 34-53-02-400-801
- (a) If the BITE test passed, then you corrected the fault.
- (b) If the maintenance message shows, then continue.
- (4) Do this check of the Wiring:
- (a) Remove the L ATC Transponder, M163. This is the task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
- (b) Do a Wiring check between Connector D149A, Pin 71 and an Airplane Ground (WDM 34-53-31):
- | | |
|--------------------|------------|
| ATC | |
| TRANSPONDER | GND |
| D149A | GND |
| pin 71 | GND |
- (c) If you find a problem with the Wiring, then do these steps:
- 1) Repair the Wiring as follows: SWPM 20-10-13.



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- 2) Install the L ATC Transponder. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
- 3) Do the Repair Confirmation at the end of this task.
- (d) If you do not find a problem with the Wiring, then continue.
 - 1) Install the L ATC Transponder. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
- (5) Replace the top ATC Antenna Switch, S942. These are the tasks:
 - ATC Antenna Switch Removal, AMM TASK 34-53-04-000-801
 - ATC Antenna Switch Installation, AMM TASK 34-53-04-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (6) Replace the top ATC Antenna, M1406. These are the tasks:
 - ATC Antenna Removal, AMM TASK 34-53-01-000-801
 - ATC Antenna Installation, AMM TASK 34-53-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the L ATC Transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If the BITE test passed, then you corrected the problem.
 - (b) If the problem still exists, continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

807. R Air Traffic Control (ATC) Transponder, Top ATC Antenna Problem - Fault Isolation

A. Description

- (1) This task is for this Maintenance Message:
 - (a) TOP ANT
NOTE: If the XPDR P/F light comes on red and a second light is also on, then the maintenance message is for the second light.
- (2) The R ATC Transponder BITE found a defective top ATC Antenna or a problem in the Transponder Circuitry.

B. Possible Causes

- (1) Wiring
- (2) ATC Antenna Switch, S942
- (3) ATC top Antenna, M1406
- (4) R ATC Transponder, M381

C. Circuit Breakers

- (1) These are the Circuit Breakers related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

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D. Related Data

- (1) WDM 34-53-31
- (2) SSM 34-53-31

E. Initial Evaluation

- (1) For the R ATC Transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If the BITE test passed, then there was an intermittent problem.
 - (b) If the Maintenance Message shows, then continue.
- (2) Switch to the L ATC Transponder from the P8-29 ATC control panel in the cockpit:
 - (a) If the Maintenance Message does not show, then do step (2) of the Fault Isolation Procedure.
 - (b) If the Maintenance Messages shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do a Wiring check on the coaxial wiring between the R ATC Transponder to the top ATC antenna. To find a list of applicable tools, do these tasks:
 - Coaxial Cable Inspection, AMM TASK 20-10-72-210-801
 - Coaxial Cable and Antenna System Inspection with a Frequency Domain Reflectometer, AMM TASK 20-10-72-200-801
 - (a) Use a TDR or FDR Test Set to do an electrical check of the Coaxial Cable between the left ATC transponder and Top ATC Antenna:
 - 1) Remove the left ATC transponder. This is the task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
 - 2) Connect the TDR or FDR Test Set at pin C71 of connector D155A at the E1-5 Shelf (WDM 34-53-31).
 - 3) Do an electrical check of the Coaxial Cable and the top ATC antenna.
NOTE: The TDR and FDR Test sets have instructions which tell how to do the check of the Coax Cable and TCAS Top Antenna.
 - 4) Disconnect the TDR or FDR Test Set.
 - 5) Re-install the ATC Transponder. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - (b) If you find a problem with the Coaxial Cable, then do these steps:
 - 1) Replace the Coaxial Cable (WDM 34-53-31).
 - 2) Do the Repair Confirmation at the end of this task.
 - (c) If you did not find a problem in the coaxial wiring, then continue.
- (2) Do this check of the electrical bonding:
 - (a) Remove one bolt from the top ATC antenna.
 - (b) Measure the resistance between the ATC antenna baseplate and the airplane skin with an intrinsically safe approved bonding meter, COM-1550.
NOTE: Use the empty bolt hole to get access to the antenna baseplate.
 - 1) Make sure the resistance is less than 0.001 ohm.
 - (c) Install the bolt that was removed.
- (3) Replace the R ATC Transponder, M381. These are the tasks:

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- ATC Transponder Removal, AMM TASK 34-53-02-020-801
- ATC Transponder Installation, AMM TASK 34-53-02-400-801
- (a) If the BITE test passed, then you corrected the fault.
- (b) If the maintenance message shows, then continue.
- (4) Do this check of the Wiring:
 - (a) Remove the R ATC Transponder, M381. This is the task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
 - (b) Do a Wiring check between Connector D155A, Pin 71 and an Airplane Ground (WDM 34-53-31):

ATC	
TRANSPONDER	GND
D155A	GND
pin 71	GND
 - (c) If you find a problem with the Wiring, then do these steps:
 - 1) Repair the Wiring as follows: SWPM 20-10-13.
 - 2) Install the R ATC Transponder. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - 3) Do the Repair Confirmation at the end of this task.
 - (d) If you do not find a problem with the Wiring, then continue.
 - 1) Install the R ATC Transponder. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
- (5) Replace the top ATC Antenna Switch, S942. These are the tasks:
 - ATC Antenna Switch Removal, AMM TASK 34-53-04-000-801
 - ATC Antenna Switch Installation, AMM TASK 34-53-04-400-801
 - (a) Do the Repair Confirmation at the end of this task.
- (6) Replace the top ATC Antenna, M1406 These are the tasks:
 - ATC Antenna Removal, AMM TASK 34-53-01-000-801
 - ATC Antenna Installation, AMM TASK 34-53-01-400-801
 - (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the R ATC Transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If the BITE test passed, then you corrected the problem.
 - (b) If the problem still exists, continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

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808. L Air Traffic Control (ATC) Transponder, Bottom ATC Antenna Problem - Fault Isolation

A. Description

- (1) This task is for this Maintenance Message:
 - (a) BOT ANT
NOTE: If the XPDR P/F light comes on red and a second light is also on, then the maintenance message is for the second light.
- (2) The L ATC Transponder BITE found a defective bottom ATC Antenna or a problem in the Transponder Circuitry.

B. Possible Causes

- (1) Wiring
- (2) ATC Antenna Switch, S943
- (3) ATC bottom Antenna, M44
- (4) L ATC Transponder, M163

C. Circuit Breakers

- (1) These are the Circuit Breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	14	C01194	ATC ANT SWITCH

D. Related Data

- (1) WDM 34-53-31
- (2) SSM 34-53-31

E. Initial Evaluation

- (1) For the L ATC Transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If the BITE test passed, then there was an intermittent problem.
 - (b) If the Maintenance Message shows, then continue.
- (2) Switch to the R ATC Transponder from the P8-29 ATC control panel in the cockpit:
 - (a) If the Maintenance Message does not show, then do step (2) of the Fault Isolation Procedure.
 - (b) If the Maintenance Messages shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do a Wiring check on the coaxial wiring between the L ATC Transponder to the bottom ATC antenna. To find a list of applicable tools, do these tasks:
 - Coaxial Cable Inspection, AMM TASK 20-10-72-210-801
 - Coaxial Cable and Antenna System Inspection with a Frequency Domain Reflectometer, AMM TASK 20-10-72-200-801

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- (a) Use a TDR or FDR Test Set to do an electrical check of the Coaxial Cable between the left ATC transponder and Top ATC Antenna:
- 1) Remove the left ATC transponder. This is the task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
 - 2) Connect the TDR or FDR Test Set at pin C71 of connector D149B at the E1-2 Shelf (WDM 34-53-31).
 - 3) Do an electrical check of the Coaxial Cable and the top ATC antenna.
NOTE: The TDR and FDR Test sets have instructions which tell how to do the check of the Coax Cable and TCAS Top Antenna.
 - 4) Disconnect the TDR or FDR Test Set.
 - 5) Re-install the ATC Transponder. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
- (b) If you find a problem with the Coaxial Cable, then do these steps:
- 1) Replace the Coaxial Cable (WDM 34-53-31).
 - 2) Do the Repair Confirmation at the end of this task.
- (c) If you did not find a problem in the coaxial wiring, then continue.
- (2) Do this check of the electrical bonding:
- (a) Remove one bolt from the ATC antenna.
- (b) Measure the resistance between the ATC antenna baseplate and the airplane skin with an intrinsically safe approved bonding meter, COM-1550.
NOTE: Use the empty bolt hole to get access to the antenna baseplate.
- 1) Make sure the resistance is less than 0.001 ohm.
- (c) Install the bolt that was removed.
- (3) Replace the L ATC Transponder, M163. These are the tasks:
- ATC Transponder Removal, AMM TASK 34-53-02-020-801
 - ATC Transponder Installation, AMM TASK 34-53-02-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (4) Do this check of the Wiring:
- (a) Remove the L ATC Transponder, M163. This is the task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
- (b) Do a check of the Wiring between Connector D149B, Pin 71 and an Airplane Ground (WDM 34-53-31):

BOTTOM ATC

ANTENNA	GND
D149B	GND
pin 71	GND

- (c) If you find a problem with the Wiring, then do these steps:
- 1) Repair the Wiring as follows: SWPM 20-10-13.
 - 2) Install the L ATC Transponder. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - 3) Do the Repair Confirmation at the end of this task.

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- (d) If you do not find a problem with the Wiring, then continue.
- 1) Install the L ATC Transponder. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
- (5) Replace the bottom ATC Antenna Switch, S943. These are the tasks:
- ATC Antenna Switch Removal, AMM TASK 34-53-04-000-801
 - ATC Antenna Switch Installation, AMM TASK 34-53-04-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (6) Replace the bottom ATC Antenna, M44. These are the tasks:
- ATC Antenna Removal, AMM TASK 34-53-01-000-801
 - ATC Antenna Installation, AMM TASK 34-53-01-400-801
- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the L ATC Transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
- (a) If the BITE test passed, then you corrected the problem.
- (b) If the problem still exists, continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

809. R Air Traffic Control (ATC) Transponder, Bottom ATC Antenna Problem - Fault Isolation

A. Description

- (1) This task is for this Maintenance Message:
- (a) BOT ANT
- NOTE: If the XPDR P/F light comes on red and a second light is also on, then the maintenance message is for the second light.
- (2) The R ATC Transponder BITE found a defective bottom ATC Antenna or a problem in the Transponder Circuitry.

B. Possible Causes

- (1) Wiring
- (2) ATC Antenna Switch, S943
- (3) ATC bottom Antenna, M44
- (4) R ATC Transponder, M381

C. Circuit Breakers

- (1) These are the Circuit Breakers related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

D. Related Data

- (1) WDM 34-53-31
- (2) SSM 34-53-31

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E. Initial Evaluation

- (1) For the R ATC Transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If the BITE test passed, then there was an intermittent problem.
 - (b) If the maintenance message shows, then continue.
- (2) Switch to the R ATC Transponder from the control panel in the cockpit:
 - (a) If the Maintenance Message does not show, then do step (2) of the Fault Isolation Procedure.
 - (b) If the Maintenance Messages shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do a Wiring check on the coaxial wiring between the R ATC Transponder to the bottom ATC antenna. To find a list of applicable tools, do these tasks:
 - Coaxial Cable Inspection, AMM TASK 20-10-72-210-801
 - Coaxial Cable and Antenna System Inspection with a Frequency Domain Reflectometer, AMM TASK 20-10-72-200-801
 - (a) Use a TDR or FDR Test Set to do an electrical check of the Coaxial Cable between the left ATC transponder and Top ATC Antenna:
 - 1) Remove the left ATC transponder. This is the task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
 - 2) Connect the TDR or FDR Test Set at pin C71 of connector D155B at the E1-5 Shelf (WDM 34-53-31).
 - 3) Do an electrical check of the Coaxial Cable and the top ATC antenna.
NOTE: The TDR and FDR Test sets have instructions which tell how to do the check of the Coax Cable and TCAS Top Antenna.
 - 4) Disconnect the TDR or FDR Test Set.
 - 5) Re-install the ATC Transponder. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - (b) If you find a problem with the Coaxial Cable, then do these steps:
 - 1) Replace the Coaxial Cable (WDM 34-53-31).
 - 2) Do the Repair Confirmation at the end of this task.
 - (c) If you did not find a problem in the coaxial wiring, then continue.
- (2) Do this check of the electrical bonding:
 - (a) Remove one bolt from the bottom ATC antenna.
 - (b) Measure the resistance between the ATC antenna baseplate and the airplane skin with an intrinsically safe approved bonding meter, COM-1550.
NOTE: Use the empty bolt hole to get access to the antenna baseplate.
 - 1) Make sure the resistance is less than 0.001 ohm.
 - (c) Install the bolt that was removed.
- (3) Replace the R ATC Transponder, M381. These are the tasks:
 - ATC Transponder Removal, AMM TASK 34-53-02-020-801
 - ATC Transponder Installation, AMM TASK 34-53-02-400-801
 - (a) Do the Repair Confirmation at the end of this task.

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- (4) Do this check of the wiring:
- (a) Remove the R ATC Transponder, M381. This is the task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
 - (b) Do a check of the Wiring between Connector D155B, Pin 71 and an Airplane Ground (WDM 34-53-31):

ATC	
TRANSPONDER	GND
D155B	GND
pin 71	GND
 - (c) If you find a problem with the Wiring, then do these steps:
 - 1) Repair the Wiring. Refer to this task: SWPM 20-10-13.
 - 2) Install the R ATC Transponder. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - 3) Do the Repair Confirmation at the end of this task.
 - (d) If you do not find a problem with the Wiring, then continue.
 - 1) Install the R ATC Transponder. This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
- (5) Replace the bottom ATC Antenna Switch, S943. These are the tasks:
- ATC Antenna Switch Removal, AMM TASK 34-53-04-000-801
 - ATC Antenna Switch Installation, AMM TASK 34-53-04-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (6) Replace the bottom ATC Antenna, M44. These are the tasks:
- ATC Antenna Removal, AMM TASK 34-53-01-000-801
 - ATC Antenna Installation, AMM TASK 34-53-01-400-801
- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) For the R ATC Transponder, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
- (a) If the BITE test passed, then you corrected the problem.
 - (b) If the problem still exists, continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

810. Left Air Traffic Control (ATC) Transponder, ATC Control Panel Input Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
- (a) CNTL PNL
- (2) The left ATC transponder BITE found a fault with the ATC control panel.

B. Possible Causes

- (1) ATC control panel, P8-29.
- (2) Wiring.

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- (3) Left ATC transponder, M163.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2

D. Related Data

- (1) (WDM 34-53-11).

E. Initial Evaluation

- (1) For the L ATC, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
- (a) If the BITE test passed, then there was an intermittent fault.
- (b) If the maintenance message shows, then continue.
- (2) Switch to the R ATC Transponder from the P8-29 control panel.
- (a) If the Maintenance Message does not show, then do step (2) of the Fault Isolation Procedure.
- (b) If the Maintenance Messages shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the ATC control panel, P8-29, at the P8 aft aisle stand.
- These are the tasks:
- ATC Control Panel Removal, AMM TASK 34-53-03-000-801,
ATC Control Panel Installation, AMM TASK 34-53-03-400-801.
- (a) For the left ATC, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
- 1) If the BITE test passed, then you corrected the fault.
- 2) If the maintenance message shows, then continue.
- (2) Do this check of the wiring:
- (a) Remove the ATC control panel, P8-29, at the P8 aft aisle stand. To remove it, do this task: ATC Control Panel Removal, AMM TASK 34-53-03-000-801.
- (b) Remove the left ATC transponder, M163. To remove it, do this task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
- (c) Do a wiring check between these pins of connector D211 at the P8 aft aisle stand and connector D149A at the E1-2 shelf (WDM 34-53-11).

D211	D149A
pin 22	pin E7
pin 23	pin F7

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- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ATC control panel. To install it, do this task: ATC Control Panel Installation, AMM TASK 34-53-03-400-801.
 - 3) Re-install the left ATC transponder. To install it, do this task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - 4) For the left ATC, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - a) If the BITE test passed, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
 - 1) Re-install the ATC control panel. To install it, do this task: ATC Control Panel Installation, AMM TASK 34-53-03-400-801.
- (3) Install a new left ATC transponder. To install it, do this task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - (a) For the left ATC, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - 1) If the BITE test passed, then you corrected the fault.

————— END OF TASK —————

811. Right Air Traffic Control (ATC) Transponder, ATC Control Panel Input Problem - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) CNTL PNL
- (2) The right ATC transponder BITE found a fault with the ATC control panel.

B. Possible Causes

- (1) ATC control panel, P8-29.
- (2) Wiring.
- (3) Right ATC transponder, M381.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2

D. Related Data

- (1) (WDM 34-53-21).
- (2) (SSM 34-53-21).

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E. Initial Evaluation

- (1) For the R ATC, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If the BITE test passed, then there was an intermittent fault.
 - (b) If the maintenance message shows, then continue.
- (2) Switch to the L ATC Transponder from the P8-29 control panel.
 - (a) If the Maintenance Message does not show, then do step (2) of the Fault Isolation Procedure.
 - (b) If the Maintenance Messages shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the ATC control panel, P8-29, at the P8 aft aisle stand.

These are the tasks:

ATC Control Panel Removal, AMM TASK 34-53-03-000-801,
ATC Control Panel Installation, AMM TASK 34-53-03-400-801.

 - (a) For the right ATC, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - 1) If the BITE test passed, then you corrected the fault.
 - 2) If the maintenance message shows, then continue.
- (2) Do this check of the wiring:
 - (a) Remove the ATC control panel, P8-29, at the P8 aft aisle stand. To remove it, do this task: ATC Control Panel Removal, AMM TASK 34-53-03-000-801.
 - (b) Remove the right ATC transponder, M381. To remove it, do this task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.
 - (c) Do a wiring check between these pins of connector D519 at the P8 aft aisle stand and connector D155A at the E1-5 shelf (WDM 34-53-11).

D519	D155A
pin 22	pin E7
pin 23	pin F7

- (d) If you find a problem with the wiring, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ATC control panel. To install it, do this task: ATC Control Panel Installation, AMM TASK 34-53-03-400-801.
 - 3) Re-install the right ATC transponder. To install it, do this task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - 4) For the right ATC, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - a) If the BITE test passed, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
 - 1) Re-install the ATC control panel. To install it, do this task: ATC Control Panel Installation, AMM TASK 34-53-03-400-801.

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- (3) Install a new right ATC transponder. To install it, do this task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - (a) For the right ATC, do this task: Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - 1) If the BITE test passed, then you corrected the fault.

————— **END OF TASK** —————

814. ATC Control Panel Code Indicator Problem - Fault Isolation

A. Description

- (1) The ATC control panel code select knobs do not change the 4 digit identification code shown in the ATC code display window.

B. Possible Causes

- (1) ATC control panel, P8-29.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2

D. Related Data

- (1) (WDM 34-53-11).
- (2) (WDM 34-53-21).

E. Initial Evaluation

- (1) Set the ATC control panel select knobs to 1600.
 - (a) If the ATC code indicator display window changes to 1600, then there was an intermittent fault.
 - (b) If the ATC code indicator display window does not change to 1600, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the ATC control panel, P8-29, at the P8 aft aisle stand.

These are the tasks:

ATC Control Panel Removal, AMM TASK 34-53-03-000-801,
ATC Control Panel Installation, AMM TASK 34-53-03-400-801.

 - (a) Set the ATC code switches to a code of 1600.
 - 1) If the ATC code indicator display window changes to 1600, then you corrected the fault.

————— **END OF TASK** —————

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817. Air Traffic Control (ATC) Control Panel FAIL Light is ON - Fault Isolation

A. Description

- (1) This task is(are) for this(these) observed fault(s):
 - (a) XPNDR FAIL light is ON
- (2) The light comes ON for these conditions:
 - (a) Transponder failure
 - (b) Antenna failure
 - (c) Control data failure
 - (d) Altitude input failure
 - (e) Loss of the Global Positioning System (GPS) signal.

B. Possible Causes

- (1) Left (Right) ATC Transponder, M163 (M381)
- (2) ATC Control Panel, P8-29
- (3) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	14	C00188	ATC 2

D. Related Data

- (1) SSM 34-53-11
- (2) SSM 34-53-21
- (3) WDM 34-53-11
- (4) WDM 34-53-21

E. Initial Evaluation

- (1) Do this task for Left (Right) ATC Transponder, M163 (M381): Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
 - (a) If fault indications show, refer to the Maintenance Message table and do the specified task(s) for the Maintenance Message(s) that shows, then do the Fault Isolation Procedure below.
 - (b) If no fault indications show, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this check of the wiring (WDM 34-53-11, WDM 34-53-21):
 - (a) Remove the Left (Right) ATC Transponder M163 (M381). This is the task: ATC Transponder Removal, AMM TASK 34-53-02-020-801.

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- (b) Remove the ATC Control Panel, P8-29. This is the task: ATC Control Panel Removal, AMM TASK 34-53-03-000-801.
- (c) Do a wiring check as follows:

ATC Control Panel, P8-29 D211	Left ATC Transponder, M163 D149A
pin 12	B3
pin 12	B1
pin 12	E1

ATC Control Panel, P8-29 D519	Right ATC Transponder, M381 D155A
pin 12	B3
pin 12	B1
pin 12	E1

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the Left (Right) ATC Transponder, M163 (M381). This is the task: ATC Transponder Installation, AMM TASK 34-53-02-400-801.
 - 3) Re-install the ATC Control Panel, P8-29. This is the task: ATC Control Panel Installation, AMM TASK 34-53-03-400-801.
 - 4) Do the Repair Confirmation at the end of this task.
- (e) If there is no problem with the wiring, then continue.
- (2) Replace the ATC Control Panel, P8-29. These are the tasks:
- ATC Control Panel Removal, AMM TASK 34-53-03-000-801
 - ATC Control Panel Installation, AMM TASK 34-53-03-400-801
- (a) Do the Repair Confirmation at the end of this task.
- (3) Replace the Left (Right) ATC Transponder, M163 (M381). These are the tasks:
- ATC Transponder Removal, AMM TASK 34-53-02-020-801
 - ATC Transponder Installation, AMM TASK 34-53-02-400-801
- (a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this task for Left (Right) ATC Transponder, M163 (M381): Air Traffic Control (ATC) Transponder BITE Procedure, 34-53 TASK 801.
- (a) If no fault indications show, then you have corrected the problem.
- (b) If fault indications show, then continue the Fault Isolation Procedure at the subsequent step.

———— **END OF TASK** ————

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1. ATC ENHANCED SURVEILLANCE PARAMETERS

- A. Downlink Of Aircraft Parameters (DAP) data sources for Elementary Surveillance, Enhanced Surveillance and Extended Squitter.

Table 301 ELEMENTARY SURVEILLANCE (ELE)

DAP	SOURCE	AMM REFERENCE	FIM REFERENCE
FLIGHT ID	FMC	34-61-00/501	34-61 TASK 801

Table 302 ENHANCED SURVEILLANCE (EHS)

DAP	SOURCE	AMM REFERENCE	FIM REFERENCE
MAGNETIC HEADING	ADIRU	34-21-00/501	34-21 TASK 808
AIRSPEED	ADIRU	34-21-00/501	34-21 TASK 830
SELECTED ALTITUDE	MCP	22-11-00/501	22-11 TASK 801
VERTICAL RATE	ADIRU	34-21-00/501	34-21 TASK 825 - 826
ROLL ANGLE	ADIRU	34-61-00/501	34-61 TASK 824
TRACK ANGLE RATE	ADIRU	34-61-00/501	34-61 TASK 824
GROUND SPEED	ADIRU	34-21-00/501	34-21 TASK 830
TRUE TRACK ANGLE	ADIRU	34-61-00-501	34-61 TASK 824

Table 303 EXTENDED SQUITTER (ES)

DAP	SOURCE	AMM REFERENCE	FIM REFERENCE
GPS POSITION	MMR	34-58-00/501	34-46 TASK 842
GPS VELOCITY	MMR	34-58-00/501	34-46 TASK 842

- B. Refer to the applicable Wire Diagram Manual for more fault isolation data.

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801. DME Interrogator BITE Procedure

A. General

- (1) You do the Distance Measuring Equipment (DME) Interrogator Built-In-Test Equipment (BITE) test at the front panel of the DME Interrogator. The DME-1 Interrogator is on the E1-2 shelf in the Electronic Equipment Bay. DME-2 Interrogator is on the E1-5 shelf in the Electronic Equipment Bay.
- (2) The DME Interrogator BITE test does a check for existing internal and external faults. Results of the BITE test are displayed on the front panel of the DME interrogator.

B. BITE Procedure

(Figure 201)

- (1) Do the BITE procedure for the DME interrogator.
 - (a) Push and release the TEST button on the front panel of the DME interrogator to start the BITE test.
 - 1) Make sure that these indications occur:
 - a) The Red lights for the LRU STATUS and the CONTROL FAIL come ON.
 - b) The LRU STATUS light changes to Green after 3 seconds.
 - c) Both lights go off after 6 seconds.
 - d) The Green LRU STATUS light comes ON after 15 seconds.
 - 2) Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance messages.

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
DME INTRROGTR	CONTROL FAIL	34-55 TASK 806
DME INTRROGTR	LRU STATUS	34-55 TASK 802

————— **END OF TASK** —————

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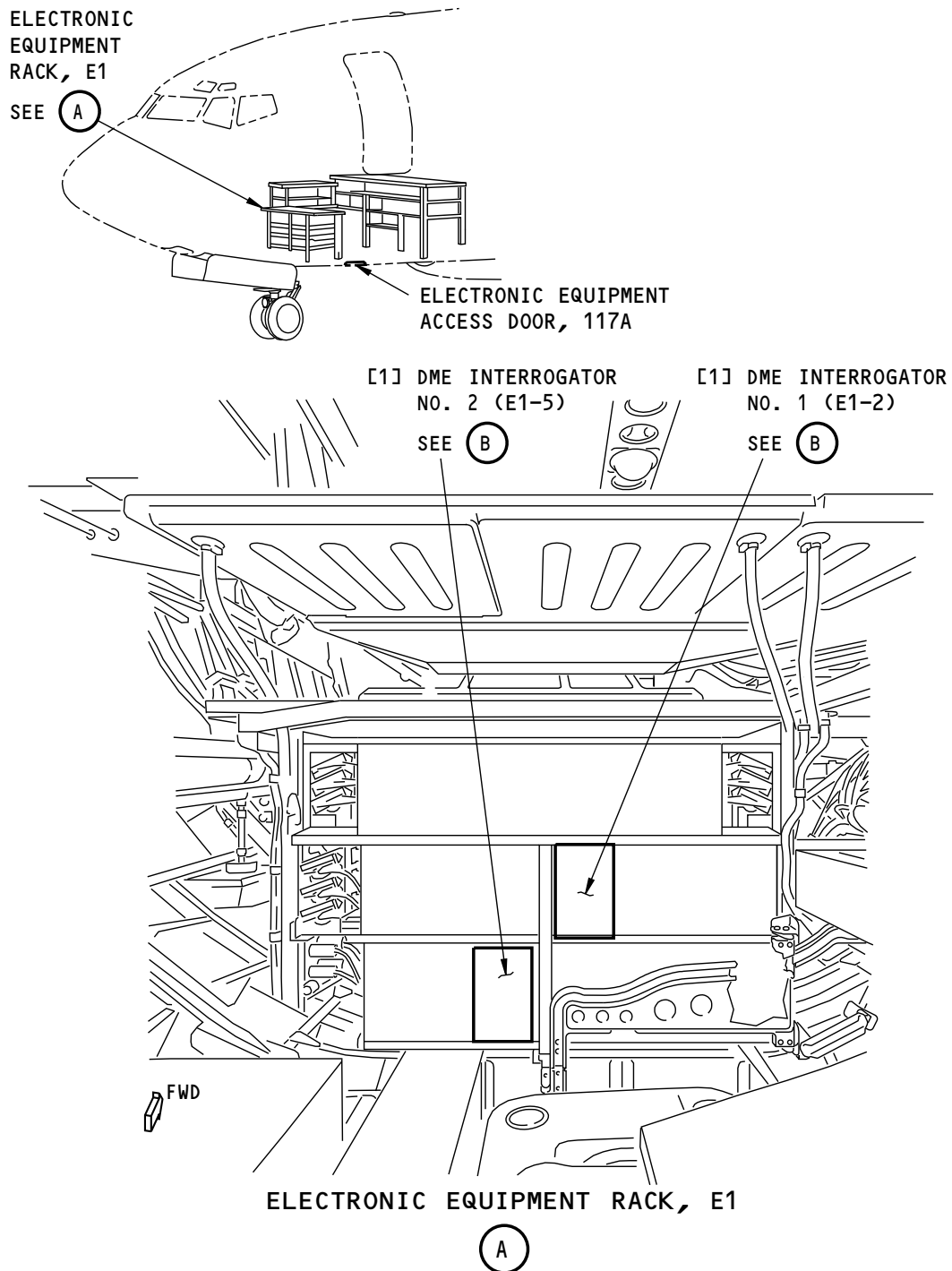
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DME Interrogator
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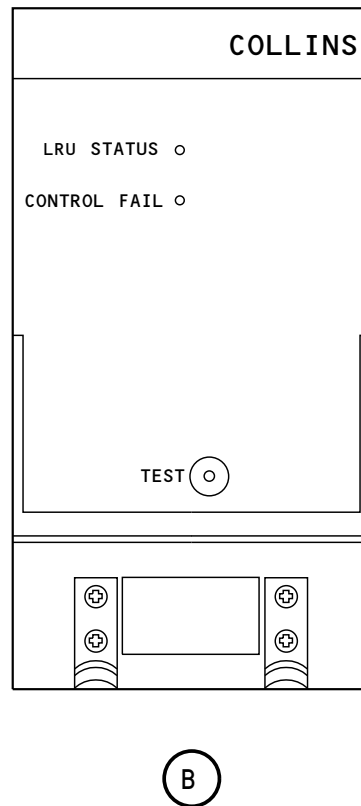
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802. DME Interrogator Problem - Fault Isolation

A. Description

- (1) This task is for this DME Maintenance Message:
 - (a) LRU STATUS (Red LED)
- (2) An internal fault has been found for either the DME-1 or DME-2 Interrogators.

B. Possible Causes

- (1) DME-1 Interrogator, M164
- (2) DME-2 Interrogator, M165

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	14	C00192	RADIO NAVIGATION DME 2

D. Related Data

- (1) SSM 34-55-11
- (2) SSM 34-55-21
- (3) WDM 34-55-11
- (4) WDM 34-55-21

E. Initial Evaluation

- (1) Do the DME Interrogator BITE Procedure, 34-55 TASK 801.
 - (a) If the Maintenance Message does not show, then there was an intermittent problem.
 - (b) If the Maintenance Message shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Replace the applicable DME-1 Interrogator, M164 or DME-2 Interrogator, M165. These are the tasks:
 - DME Interrogator Removal, AMM TASK 34-55-21-000-801
 - DME Interrogator Installation, AMM TASK 34-55-21-400-801
- (a) Do the DME Interrogator BITE Procedure, 34-55 TASK 801.
 - 1) If the Maintenance Message does not show, then you corrected the fault.

————— **END OF TASK** —————

806. Tuning Port Missing Input - Fault Isolation

A. Description

- (1) This task is for this maintenance message:
 - (a) CONTROL FAIL
- (2) DME receives no input data from navigation control panels.

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B. Possible Causes

- (1) Navigation control panel, P8-25 (captain's) or P8-26 (first officer's).
- (2) Wiring problem.

C. Related Data

- (1) (SSM 34-55-11).
- (2) (SSM 34-55-21).
- (3) (WDM 34-55-11).
- (4) (WDM 34-55-21).

D. Initial Evaluation

- (1) Do this task: DME Interrogator BITE Procedure, 34-55 TASK 801.
 - (a) If the red CONTROL FAIL light comes on after approximately 15 seconds, then do the Fault Isolation Procedure below.
 - (b) If the green CONTROL FAIL light comes on after approximately 15 seconds, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) Do this check of the navigation control panel:
 - (a) Make sure that the navigation control panel does not show FAIL on the ACTIVE or STANDBY frequency indicators.
 - (b) If the navigation control panel shows FAIL on the ACTIVE or STANDBY frequency indicators, then do these steps:
 - 1) Replace the navigation control panel, P8-25 (captain's) or P8-26 (first officer's).
These are the tasks:
Navigation Control Panel Removal, AMM TASK 34-31-52-000-801,
Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
 - 2) Do this task: DME Interrogator BITE Procedure, 34-55 TASK 801.
 - 3) If the green CONTROL FAIL light comes on after approximately 15 seconds, then you corrected the fault.
 - (c) If the navigation control panel does not show FAIL on the ACTIVE and STANDBY frequency indicators, then continue.
- (2) Do this check of the wiring:
 - (a) Remove the navigation control panel. To remove it, do this task: Navigation Control Panel Removal, AMM TASK 34-31-52-000-801.
 - (b) Remove the DME Interrogator. To remove it, do this task: DME Interrogator Removal, AMM TASK 34-55-21-000-801.
 - (c) Do wiring check between these pins of the connector for the DME interrogator and the connector for the applicable navigation control panel:

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	NAV CONNECTOR	DME CONNECTOR
CAPTAIN (P8-25)	D263 pin 20 pin 21	D161B pin A3 pin B3
FIRST OFFICER (P8-26)	D305 pin 28 pin 29	D3649B pin A3 pin B3

- (d) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the navigation control panel. To install it, do this task: Navigation Control Panel Installation, AMM TASK 34-31-52-400-801.
 - 3) Re-install the DME interrogator. To install it, do this task: DME Interrogator Installation, AMM TASK 34-55-21-400-801.
 - 4) Do this task: DME Interrogator BITE Procedure, 34-55 TASK 801.
 - a) If the green CONTROL FAIL light comes on after approximately 15 seconds, then you corrected the fault.
- (e) If you do not find a problem with the wiring, then continue.
- 1) Re-install the navigation control panel. To install it, do this task: Navigation Control Panel Installation, AMM TASK 34-31-52-400-801
- (3) Do this check of the wiring:
- (a) Remove the applicable FMC, M1175 or M1632. To remove it, do this task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.
 - (b) Do a wiring check between these pins of the connector for the applicable DME interrogator and the connector for the FMC:

	DME CONNECTOR	FMC CONNECTOR
DME-1	D161B pin D3 pin E3	FMC 1 - D2179A pin H9 pin G9
DME-2	D169B pin D3 pin E3	FMC 2 - D3261B pin E7 pin D7

- (c) If you find a problem with the wiring, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the FMC. To install it, do this task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.

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- 3) Re-install the DME interrogator. To install it, do this task: DME Interrogator Installation, AMM TASK 34-55-21-400-801.
- 4) Do this task: DME Interrogator BITE Procedure, 34-55 TASK 801.
 - a) If the green CONTROL FAIL light comes on after approximately 15 seconds, then you corrected the fault.

———— **END OF TASK** ————

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801. ADF BITE Procedure

A. General

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- (1) You do the Automatic Direction Finder (ADF) Receiver Built-In-Test Equipment (BITE) Test at the front panel of the ADF Receiver.
 - (a) The ADF Receivers are on the E3-1 shelf in the Electronic Equipment Center.

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- (2) The ADF Receiver BITE test does a self check for existing internal and external faults. Results of the BITE test are displayed on the Light Emitting Diode (LED) lights on the front panel of the ADF Receiver.

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B. BITE Procedure

(Figure 201)

- (1) Do the BITE Procedure for the ADF Receiver as follows:
 - (a) Push and release the TEST switch on the front panel of the ADF Receiver.
 - (b) Make sure these indications occur:

NOTE: The time lengths are only approximations.

 - 1) From 0 to 3 seconds, the two LED lights come ON Red.
 - 2) From 3 to 6 seconds, the LRU STATUS light changes to Green.
 - 3) From 6 to 15 seconds, the two LED lights go OFF.
 - 4) After 15 seconds, one of these LED lights will come ON:
 - a) The Green LRU STATUS if the BITE test passed.
 - b) The Red LRU STATUS if there is an ADF Receiver failure.
 - c) The Red CONTROL FAIL if there is a failure of the Digital Data input to the ADF Receiver.
 - 5) Refer to the table at the end of this task to find the applicable Fault Isolation Tasks for the maintenance messages that show.

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
ADF RECVR - 1	CONTROL FAIL	34-57 TASK 823
ADF RECVR - 1	LRU STATUS	34-57 TASK 802
ADF RECVR - 2	CONTROL FAIL	34-57 TASK 824
ADF RECVR - 2	LRU STATUS	34-57 TASK 825

————— **END OF TASK** —————

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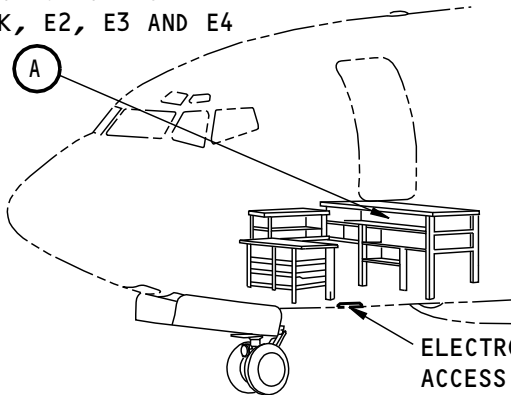
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ELECTRONIC EQUIPMENT
RACK, E2, E3 AND E4

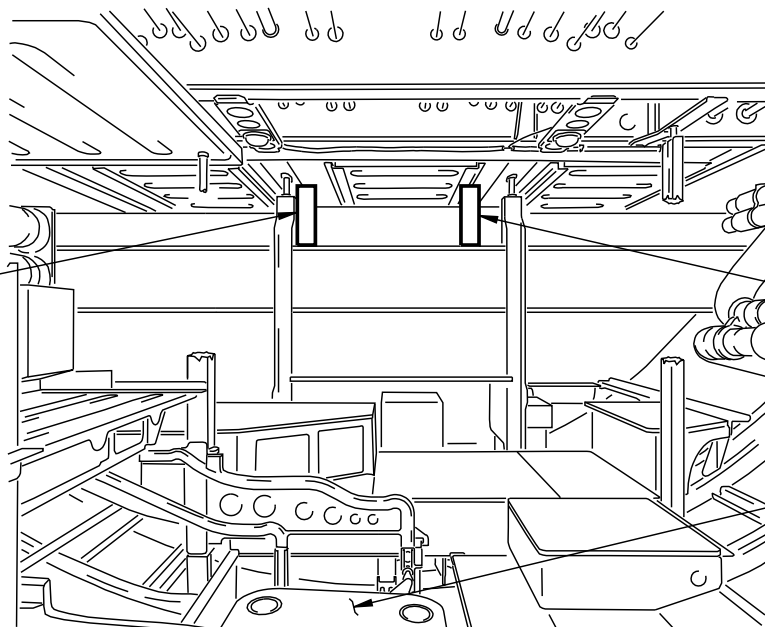
SEE (A)



ELECTRONIC EQUIPMENT
ACCESS DOOR, 117A

[1] ADF
RECEIVER
NO. 2
(E3-1)

SEE (B)



[1] ADF
RECEIVER
NO. 1
(E3-1)

SEE (B)

ELECTRONIC
EQUIPMENT
ACCESS
DOOR, 117A

FWD

ELECTRONIC EQUIPMENT RACKS, E2, E3 AND E4

(A)

G75438 S0000147155_V1

ADF Receiver Installation
Figure 201/34-57-00-990-808 (Sheet 1 of 2)

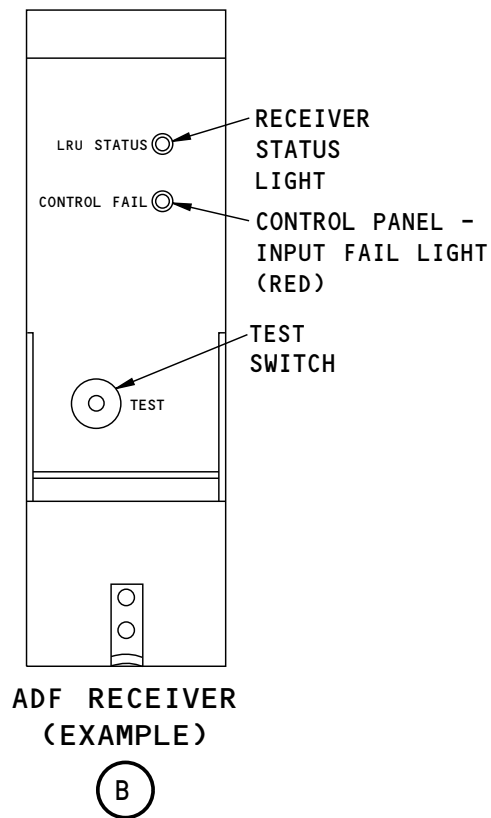
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G88715 S0000147161_V1

ADF Receiver Installation
Figure 201/34-57-00-990-808 (Sheet 2 of 2)

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802. ADF Receiver-1 Problem - Fault Isolation

A. Description

- (1) This task is for this ADF Receiver 1 Maintenance Message:

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- (a) LRU STATUS (Red LED)

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B. Possible Causes

- (1) ADF Receiver-1, M1731
(2) ADF Control Panel, P8-70
(3) Wiring Problem.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

D. Related Data

- (1) SSM 34-57-11
(2) WDM 34-57-11

E. Initial Evaluation

- (1) Do the ADF BITE Procedure, 34-57 TASK 801.
(2) If the Maintenance Message shows, then do the Fault Isolation Procedure below.
(3) If the Maintenance Message does not show, then there was an intermittent problem.

NOTE: If this message occurs frequently, then the problem can be a loose connection at the sensor.

F. Fault Isolation Procedure

- (1) Replace the ADF Receiver-1, M1731. These are the tasks:
- ADF Receiver Removal, AMM TASK 34-57-03-000-801
 - ADF Receiver Installation, AMM TASK 34-57-03-400-801
- (a) If the Installation Test for the ADF Receiver is satisfactory, then you corrected the problem.
- (b) If the Maintenance Message shows during the Installation Test for the ADF Receiver, then continue.
- (2) Replace the ADF Control Panel. These are the tasks:
- ADF Control Panel - Removal, AMM TASK 34-57-02-000-801
 - ADF Control Panel - Installation, AMM TASK 34-57-02-400-801
- (a) Do the ADF BITE Procedure, 34-57 TASK 801.
- (b) If the Maintenance Message does not show during the ADF BITE test, then you corrected the problem.
- (c) If the Maintenance Message shows during the ADF BITE test, then continue.

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- (3) Do this check of the Wiring:
- (a) Remove the ADF Receiver-1, M1731. This is the task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Do a Continuity Check between Pin 4 of Connector D3651C and Structure Ground (WDM 34-57-11).
 - (c) If there is not continuity between Pin 4 and Structure Ground, then do these steps:
 - 1) Repair the Wiring (WDM 34-57-11).
 - 2) Re-install the ADF Receiver-1, M1731. This is the task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Do the ADF BITE Procedure, 34-57 TASK 801.
 - 4) If the Maintenance Message does not show during the ADF Receiver BITE procedure, then you corrected the problem.
 - (d) If there is continuity between Pin 4 and Structure Ground, then continue.
- (4) Do this check of the Wiring:
- (a) Remove the ADF Control Panel, P8-70. This is the task: ADF Control Panel - Removal, AMM TASK 34-57-02-000-801.
 - (b) Do a check for an Open Circuit between these pins of Connector D3659 at the ADF Control Panel, P8-70 and Connector D3651C at the ADF receiver (WDM 34-57-11):

D3659	D3651C
pin 9	pin 2

- (c) If there is an Open Circuit, then do these steps:
- 1) Repair the Wiring (WDM 34-57-11).
 - 2) Re-install the ADF Receiver-1, M1731. This is the task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the ADF Control Panel, P8-70. This is the task: ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.
 - 4) Do the ADF BITE Procedure, 34-57 TASK 801.
 - 5) If the Maintenance Message does not show during the ADF BITE procedure, then you corrected the problem.

———— **END OF TASK** ————

806. Audio Problem No. 1 - Fault Isolation

A. Description

- (1) The ADF audio functions have a failure.

B. Possible Causes

- (1) ADF receiver 1, M1731.
- (2) Remote electronic unit (REU), M1353.
- (3) Wiring problem.

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C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

D. Related Data

- (1) (SSM 34-57-11).
(2) (WDM 34-57-11).

E. Initial Evaluation

- (1) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
- (a) If the ADF System - Audio Test is not satisfactory, then do the Fault Isolation Procedure below.
- (b) If the ADF System - Audio Test is satisfactory, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: Captain's Flight Interphone Speaker Problem - Fault Isolation, 23-51 TASK 805.
- (a) If the captain's flight interphone speaker is not the cause of the fault, then do these steps:
- 1) Replace the applicable ADF receiver.
- These are the tasks:
- ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
- 2) If the installation test for the ADF receiver is satisfactory, then you corrected the fault.
- (b) If the installation test for the ADF receiver is not satisfactory, then continue.
- (2) Do this check of the wiring between the ADF and the REU, M1353.
- (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
- (b) Remove the REU receiver. To remove it, do this task: Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
- (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR D3651B	REU CONNECTOR D2501A
ADF 1	pin B1	pin C11
	pin B2	pin B11

- (d) If there is an open circuit, then do these steps:
- 1) Repair the wiring.
- 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.

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- 3) Re-install the REU. To install it, do this task: Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
- 4) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
- 5) If the ADF audio is functional, then you corrected the fault.

————— **END OF TASK** —————

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807. Audio Problem No. 2 - Fault Isolation

A. Description

- (1) The ADF audio functions have a failure.

B. Possible Causes

- (1) ADF receiver 2, M1732.
- (2) Remote Electronic Unit (REU), M1353.
- (3) Wiring.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C01383	RADIO NAVIGATION ADF 2

D. Related Data

- (1) (SSM 34-57-11).
- (2) (SSM 34-57-21).
- (3) (WDM 34-57-11).
- (4) (WDM 34-57-21).

E. Initial Evaluation

- (1) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
 - (a) If the ADF System - Audio Test is not satisfactory, then do the Fault Isolation Procedure below.
 - (b) If the ADF System - Audio Test is satisfactory, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: Microphone/Headset Problem - Fault Isolation, 23-51 TASK 801.
 - (a) If the ADF audio problem continues, then do these steps:
 - 1) Replace the ADF No. 2 receiver.

These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 2) If the ADF audio is functional, then you have corrected the fault.
 - 3) Replace the applicable REU.

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These are the tasks:

Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801,

Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.

- 4) If the ADF audio is functional, then you have corrected the fault.
- (b) If the ADF audio problem continues, then continue.
- (2) Do this check of the wiring between the applicable ADF and the REU, M1353.
 - (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the REU receiver. To remove it, do this task: Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
 - (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR D3653B	REU CONNECTOR D2501A
ADF 2	pin B1	pin K8
	pin B2	pin K7

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the REU. To install it, do this task: Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
 - a) If the ADF audio is functional, then you have corrected the fault.

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———— **END OF TASK** ————

808. ADF-1 Captain's Indication Blank - Fault Isolation

A. Description

- (1) The captain's ADF display is blank.

B. Possible Causes

- (1) ADF receiver 1, M1731.
- (2) Display electronic unit (DEU-1), M1808.
- (3) Wiring.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

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D. Related Data

- (1) (SSM 34-57-11).
- (2) (WDM 34-57-11).

E. Initial Evaluation

- (1) If the captain's ADF display does not show, then do the Fault Isolation below.
- (2) If the captain's display shows, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (a) If you find an ADF fault, then do these steps:
 - 1) Replace the ADF receiver, M1731.
These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 2) If the ADF display is normal, then you corrected the fault.
 - (b) If you do not find an ADF system fault, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If you find an ADF data fault or DEU internal fault, then go to the applicable task for that DEU maintenance message to correct the fault.
 - 1) If the ADF display is normal, then you corrected the fault.
 - (b) If the ADF display does not show, then continue.
- (3) Do this check of the wiring between the applicable ADF and DEU-1.
 - (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the DEU 1, M1808. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR D3651B	DEU 1 CONNECTOR D3973A
ADF 1	pin B13	pin C3
	pin B14	pin D3

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the DEU 1. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) If the ADF display is normal, then you corrected the fault.

————— **END OF TASK** —————

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809. ADF-1 First Officer's Indication Blank - Fault Isolation

A. Description

- (1) The first officer's ADF display is blank.

B. Possible Causes

- (1) ADF receiver 1, M1731.
- (2) Display electronic unit (DEU-2), M1809.
- (3) Wiring.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

D. Related Data

- (1) (SSM 34-57-11).
- (2) (WDM 34-57-11).

E. Initial Evaluation

- (1) If the First Officer's ADF display does not show, then do the Fault Isolation Procedure below.
- (2) If the First Officer's ADF display shows, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (a) If you find an ADF fault, then do these steps:
 - 1) Replace the ADF receiver, M1731.

These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 2) If the ADF display is normal, then you corrected the fault.
 - (b) If you do not find an ADF system fault, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If you find an ADF data fault or DEU internal fault, then go to the applicable task for that DEU maintenance message to correct the fault.
 - 1) If the ADF display is normal, then you corrected the fault.
 - (b) If the ADF display does not show, then continue.
- (3) Do this check of the wiring between the ADF-1 and DEU-2.
 - (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the DEU 2, M1809. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a check for an open circuit between these pins:

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	ADF CONNECTOR D3651B	DEU 2 CONNECTOR D3975A
ADF 1	pin B13	pin C3
	pin B14	pin D3

- (d) If there is an open circuit, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the DEU-2. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) If the ADF display is normal, then you corrected the fault.

———— END OF TASK ————

810. ADF-1 Captain's and First Officer's Indication Blank - Fault Isolation

A. Description

- (1) The captain's and first officer's ADF display is blank.

B. Possible Causes

- (1) ADF receiver 1, M1731.
- (2) Display electronic unit (DEU-1), M1808.
- (3) Display electronic unit (DEU-2), M1809.
- (4) Wiring.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

D. Related Data

- (1) (SSM 34-57-11).
- (2) (SSM 34-57-21).
- (3) (WDM 34-57-11).
- (4) (WDM 34-57-21).

E. Initial Evaluation

- (1) If the captain's and first officer's displays are blank, then do the Fault Isolation below.
- (2) If the captain's and first officer's displays are normal, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (a) If you find an ADF fault, then do these steps:
 - 1) Replace the ADF receiver.

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These are the tasks:

ADF Receiver Removal, AMM TASK 34-57-03-000-801,

ADF Receiver Installation, AMM TASK 34-57-03-400-801.

- 2) If the ADF displays are normal, then you corrected the fault.
- (b) If you do not find an ADF fault, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If you find an ADF data fault or DEU internal fault, then go to the applicable task for that DEU maintenance message to correct the fault.
 - 1) If the ADF displays are normal, then you corrected the fault.
 - (b) If the ADF displays do not show, then continue.
 - (3) Do this check of the wiring between the ADF-1 and DEU-1.
 - (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the DEU-1, M1808. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR	DEU-1 CONNECTOR
ADF 1	D3651B	D3973A
	pin B13	pin C3
	pin B14	pin D3

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the DEU-1. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) If the ADF displays are normal, then you corrected the fault.

————— **END OF TASK** —————

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811. ADF-2 Captain's Indication Blank - Fault Isolation

A. Description

- (1) The Captain's ADF display is blank.
- (2) This task is for fault code 345 330 31.

B. Possible Causes

- (1) ADF receiver 2, M1732.
- (2) Display Electronic Unit (DEU-1), M1808.
- (3) Wiring.

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C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C01383	RADIO NAVIGATION ADF 2

D. Related Data

- (1) (SSM 34-57-21).
(2) (WDM 34-57-21).

E. Initial Evaluation

- (1) If the Captain's display is blank, then do the Fault Isolation below.
(2) If the Captain's display is functional, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
- (a) If you find an ADF fault, then do these steps:
- 1) Replace the ADF receiver.
- These are the tasks:
- ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
- 2) If the ADF display is normal, then you corrected the fault.
- (b) If you do not find an ADF fault, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
- (a) If you find an ADF data fault or DEU internal fault, then go to the applicable task for that DEU maintenance message to correct the fault.
- 1) If the ADF display is normal, then you corrected the fault.
- (b) If the ADF display does not show, then continue.
- (3) Do this check of the wiring between the ADF-2 and the DEU-1.
- (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
- (b) Remove the DEU receiver. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
- (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR	DEU CONNECTOR
ADF 2	D3653B	D3973D
	pin B13	pin C3
	pin B14	pin D3

- (d) If there is an open circuit, then do these steps:
- 1) Repair the wiring.

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- 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
- 3) Re-install the DEU. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- 4) If the ADF display is functional, then you have corrected the fault.

———— **END OF TASK** ————

812. ADF-2 First Officer's Indication Blank - Fault Isolation

A. Description

- (1) The First Officer's ADF display is blank.
- (2) This task is for fault code 345 330 32.

B. Possible Causes

- (1) ADF receiver 2, M1732.
- (2) Display Electronic Unit (DEU-2), M1809.
- (3) Wiring.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C01383	RADIO NAVIGATION ADF 2

D. Related Data

- (1) (SSM 34-57-21).
- (2) (WDM 34-57-21).

E. Initial Evaluation

- (1) If the First Officer's display is blank, then do the Fault Isolation below.
- (2) If the First Officer's display is functional, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (a) If you find an ADF fault, then do these steps:
 - 1) Replace the ADF receiver.

These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 2) If the ADF display is normal, then you corrected the fault.
 - (b) If you do not find an ADF fault, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If you find an ADF data fault or DEU internal fault, then go to the applicable task for that DEU maintenance message to correct the fault.

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- 1) If the ADF display is normal, then you corrected the fault.
- (b) If the ADF display does not show, then continue.
- (3) Do this check of the wiring between the ADF-2 and DEU-2.
 - (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the DEU receiver. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR	DEU CONNECTOR
ADF 2	D3653B	D3975D
	pin B13	pin C3
	pin B14	pin D3

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the DEU. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) If the ADF display is functional, then you have corrected the fault.

END OF TASK

813. ADF-2 Captain's and First Officer's Indication Blank - Fault Isolation

A. Description

- (1) The Captain's and First Officer's ADF display is blank.
- (2) This task is for fault code 345 330 48.

B. Possible Causes

- (1) ADF receiver 2, M1732.
- (2) Display Electronic Unit (DEU-1), M1808.
- (3) Display Electronic Unit (DEU-2), M1809.
- (4) Wiring.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

D. Related Data

- (1) (SSM 34-57-11).
- (2) (SSM 34-57-21).

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- (3) (WDM 34-57-11).
- (4) (WDM 34-57-21).

E. Initial Evaluation

- (1) If the Captain's and First Officer's displays are blank, then do the Fault Isolation below.
- (2) If the Captain's and First Officer's displays are normal, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (a) If you find an ADF fault, then do these steps:
 - 1) Replace the ADF receiver.
These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 2) If the ADF displays are normal, then you corrected the fault.
 - (b) If you do not find an ADF fault, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If you find an ADF data fault or DEU internal fault, then go to the applicable task for that DEU maintenance message to correct the fault.
 - 1) If the ADF displays are normal, then you corrected the fault.
 - (b) If the ADF displays do not show, then continue.
- (3) Do this check of the wiring between the ADF and the DEU-1.
 - (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the DEU receiver. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR D3653B	DEU CONNECTOR D3973D
ADF 2	pin B13	pin C3
	pin b14	pin D3

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the DEU. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) If the ADF display is functional, then you have corrected the fault.

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———— **END OF TASK** ————

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814. ADF-1 Tone Problem - Fault Isolation

A. Description

- (1) The ADF audio functions have a failure.

B. Possible Causes

- (1) ADF control panel, P8-68 or P8-70.
(2) ADF receiver-1, M1731.
(3) Remote electronic unit (REU), M1353.
(4) Wiring.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

D. Related Data

- (1) (SSM 34-57-11).
(2) (WDM 34-57-11).

E. Initial Evaluation

- (1) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
(a) If the ADF System - Audio Test is not satisfactory, then do the Fault Isolation below.
(b) If the ADF System - Audio Test is satisfactory, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
(a) If you find an ADF fault, then do these steps:
1) Replace the ADF receiver, M1731.
These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
2) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
a) If the ADF System - Audio Test is satisfactory, then you corrected the fault.
(b) If you do not find an ADF fault, then continue.

SIA ALL; AIRPLANES WITH THE G7403-X ADF CONTROL PANEL

- (2) Do this task: Microphone/Headset Problem - Fault Isolation, 23-51 TASK 801.
(a) If the ADF tone problem continues, then do these steps:
1) Replace the ADF control panel-1, P8-70.
These are the tasks:
ADF Control Panel - Removal, AMM TASK 34-57-02-000-801,
ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.

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- 2) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
 - a) If the ADF System - Audio Test is satisfactory, then you corrected the fault.
 - b) If the ADF System - Audio Test is not satisfactory, then continue.

SIA ALL

- (3) Replace the REU, M1353.

These are the tasks:

Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801,

Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.

- (a) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
 - 1) If the ADF System - Audio Test is satisfactory, then you corrected the fault.
 - 2) If the ADF System - Audio Test is not satisfactory, then continue.

SIA ALL; AIRPLANES WITH THE G7403-X ADF CONTROL PANEL

- (4) Do this check of the wiring between the ADF-1, M1731 and the ADF control panel:

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- (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.

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- (b) Remove the ADF control panel. To remove it, do this task: ADF Control Panel - Removal, AMM TASK 34-57-02-000-801.
- (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR	PANEL CONNECTOR
ADF 1	D3651B	D3659
	pin B7	pin 12
	pin B8	pin 13

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.

SIA ALL

- 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.

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- 3) Re-install the ADF Control Panel. To install it, do this task: ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.
- 4) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
 - a) If the ADF System - Audio Test is satisfactory, then you corrected the fault.

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- b) If the ADF System - Audio Test is not satisfactory, then continue.

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- (5) Do this check of the wiring between the ADF-1, M1731 and the REU, M1353.
- (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the REU receiver. To remove it, do this task: Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
 - (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR	REU CONNECTOR
ADF 1	D3651B	D2501A
	pin B1	pin C11
	pin B2	pin B11

- (d) If there is an open circuit, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the REU. To install it, do this task: Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
 - 4) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
 - a) If the ADF System - Audio Test is satisfactory, then you corrected the fault.

END OF TASK

SIA ALL; AIRPLANES WITH DUAL ADF SYSTEM

815. ADF-2 Tone Problem - Fault Isolation

A. Description

- (1) The ADF audio functions have a failure.
- (2) This task is for fault code 345 340 02.

B. Possible Causes

- (1) ADF control panel, P8-69 or P8-70.
- (2) ADF receiver-2, M1732.
- (3) Remote Electronic Unit (REU), M1353.
- (4) Wiring.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

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D. Related Data

- (1) (SSM 34-57-21).
- (2) (WDM 34-57-21).

E. Initial Evaluation

- (1) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
 - (a) If the ADF System - Audio Test is not satisfactory, then do the Fault Isolation below.
 - (b) If the ADF System - Audio Test is satisfactory, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (a) If you find an ADF fault, then do these steps:
 - 1) Replace the ADF receiver, M1732.

These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 2) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
 - a) If the ADF System - Audio Test is satisfactory, then you corrected the fault.
 - (b) If you do not find an ADF fault, then continue.

SIA ALL; AIRPLANES WITH THE G7403-X ADF CONTROL PANEL

- (2) Do this task: Microphone/Headset Problem - Fault Isolation, 23-51 TASK 801.
 - (a) If the ADF tone problem continues, then do these steps:
 - 1) Replace the ADF control panel, P8-70.

These are the tasks:
ADF Control Panel - Removal, AMM TASK 34-57-02-000-801,
ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.
 - 2) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
 - a) If the ADF System - Audio Test is satisfactory, then you corrected the fault.
 - b) If the ADF System - Audio Test is not satisfactory, then continue.

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- (3) Replace the REU, M1353.

These are the tasks:
Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801,
Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.

 - (a) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
 - 1) If the ADF System - Audio Test is satisfactory, then you corrected the fault.

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- 2) If the ADF System - Audio Test is not satisfactory, then continue.
- (4) Do this check of the wiring between the ADF-2, M1732 and the ADF Control Panel-1.
- (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
- (b) Remove the ADF Control Panel-2. To remove it, do this task: ADF Control Panel - Removal, AMM TASK 34-57-02-000-801.
- (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR D3653B	PANEL CONNECTOR D3657
ADF 2	pin B7	pin 12
	pin B8	pin 13

- (d) If there is an open circuit, then do these steps:
- 1) Repair the wiring.
- 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
- 3) Re-install the ADF Control Panel-2. To install it, do this task: ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.
- 4) If the ADF tone is functional, then you have corrected the fault.
- 5) If the ADF tone problem continues, then continue.
- (5) Do this check of the wiring between the ADF-2, M1732 and the REU, M1353.
- (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
- (b) Remove the REU receiver. To remove it, do this task: Remote Electronics Unit (REU) Removal, AMM TASK 23-51-01-000-801.
- (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR D3653B	REU CONNECTOR D2501A
ADF 2	pin B1	pin K7
	pin B2	pin K8

- (d) If there is an open circuit, then do these steps:
- 1) Repair the wiring.
- 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
- 3) Re-install the REU. To install it, do this task: Remote Electronics Unit (REU) Installation, AMM TASK 23-51-01-000-802.
- 4) If the ADF tone is functional, then you have corrected the fault.

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END OF TASK

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816. ADF Flag Shows on the display - No. 1 Captain's Fault Isolation

A. Description

- (1) The ADF flag shows on the captain's display.

B. Possible Causes

- (1) ADF receiver-1, M1731.
- (2) Wiring.
- (3) Display electronic unit (DEU-1), M1808.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

D. Related Data

- (1) (SSM 34-57-11).
- (2) (WDM 34-57-11).

E. Initial Evaluation

- (1) If the ADF flag shows on the Captain's display, then do the Fault Isolation below.
- (2) If the ADF flag does not show on the Captain's display, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (a) If you find an ADF fault, then do these steps:
 - 1) Replace the ADF receiver.
These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 2) If the ADF flag does not show on the captain's display, then you corrected the fault.
 - (b) If you do not find an ADF fault, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If you find an ADF data fault or a DEU internal fault, then go to the applicable fault isolation task for that DEU maintenance message to correct the fault.
 - 1) If the ADF flag does not show on the captain's display, then you corrected the fault.
 - 2) If the ADF flag shows on the captain's display, then continue.
- (3) Do this check of the wiring between the ADF-1 and DEU-1.
 - (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the DEU receiver. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a check for an open circuit between these pins:

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	ADF CONNECTOR D3651B	DEU CONNECTOR D3973A
ADF 1	pin B13	pin C3
	pin B14	pin D3

- (d) If there is an open circuit, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the DEU. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) If the ADF flag does not show on the captain's display, then you corrected the fault.
- (4) If the ADF flag is not cleared, then do these steps:
- (a) Replace the ADF-1 antenna.
- These are the tasks:
- ADF Antenna - Removal, AMM TASK 34-57-01-000-801,
ADF Antenna - Installation, AMM TASK 34-57-01-400-801.

———— **END OF TASK** ————

817. ADF Flag shows on the display - No. 1 First Officer's - Fault Isolation

A. Description

- (1) The ADF flag shows on the first officer's display.

B. Possible Causes

- (1) ADF receiver-1, M1731.
- (2) Wiring.
- (3) Display electronic unit (DEU-2), M1809.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

D. Related Data

- (1) (SSM 34-57-11).
- (2) (WDM 34-57-11).

E. Initial Evaluation

- (1) If the ADF flag shows on the First Officer's display, then do the Fault Isolation below.
- (2) If the ADF flag does not show on the First Officer's display, then there was an intermittent fault.

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F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (a) If you find an ADF fault, then do these steps:
 - 1) Replace the ADF receiver.
These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 2) If the ADF flag does not show on the first officer's display, then you corrected the fault.
 - (b) If you do not find an ADF fault, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If you find an ADF data fault or a DEU internal fault then go to the applicable fault isolation task for the DEU maintenance message to correct the fault.
 - 1) If the ADF flag does not show on the first officer's display, then you corrected the fault.
 - 2) If the ADF flag shows on the first officer's display, then continue.
- (3) Do this check of the wiring between the ADF-1 and DEU-2.
 - (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the DEU receiver. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR D3651B	DEU CONNECTOR D3975A
ADF 1	pin B13	pin C3
	pin B14	pin D3

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the DEU. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) If the ADF flag does not show on the first officer's display, then you corrected the fault.
- (4) If the ADF flag is not cleared, then do these steps:
 - (a) Replace the ADF-1 antenna.
These are the tasks:
ADF Antenna - Removal, AMM TASK 34-57-01-000-801,
ADF Antenna - Installation, AMM TASK 34-57-01-400-801.

————— **END OF TASK** —————

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818. ADF Flag shows on CDS - No. 2 Captain's

A. Description

- (1) The ADF flag shows on the Captain's display.
- (2) This task is for fault code 345 360 31

B. Possible Causes

- (1) Display Electronic Unit (DEU-1), M1808.
- (2) ADF receiver-2, M1732.
- (3) Wiring.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C01383	RADIO NAVIGATION ADF 2

D. Related Data

- (1) (SSM 34-57-21).
- (2) (WDM 34-57-21).

E. Initial Evaluation

- (1) If the ADF flag shows on the Captain's display, then do the Fault Isolation below.
- (2) If the ADF flag does not show on the Captain's display, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (a) If you find an ADF fault, then do these steps:
 - 1) Replace the ADF receiver.
These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 2) If the ADF flag does not show on the captain's display, then you corrected the fault.
 - (b) If you do not find an ADF fault, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If you find an ADF data fault or a DEU internal fault, then go to the applicable fault isolation task for that DEU maintenance message to correct the fault.
 - 1) If the ADF flag does not show on the captain's display, then you corrected the fault.
 - 2) If the ADF flag shows on the captain's display, then continue.
- (3) Do this check of the wiring between the ADF-2 and DEU-1.
 - (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the DEU receiver. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

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- (c) Do a check for an open circuit between these pins:

ADF 2	ADF CONNECTOR D3653B	DEU CONNECTOR D3973D
	pin B13	pin C3
	pin B14	pin D3

- (d) If there is an open circuit, then do these steps:

- 1) Repair the wiring.
- 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
- 3) Re-install the DEU. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- 4) If the ADF display is functional, then you have corrected the fault.

- (4) If the ADF flag is not cleared, then do these steps:

- (a) Replace the ADF-2 antenna.

These are the tasks:

ADF Antenna - Removal, AMM TASK 34-57-01-000-801,

ADF Antenna - Installation, AMM TASK 34-57-01-400-801.

END OF TASK

819. ADF Flag shows on CDS - No. 2 First Officer's

A. Description

- (1) The ADF flag shows on the First Officer's display.
- (2) This task is for fault code 345 360 32.

B. Possible Causes

- (1) Display Electronic Unit (DEU-2), M1809.
- (2) ADF receiver-2, M1732.
- (3) Wiring.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C01383	RADIO NAVIGATION ADF 2

D. Related Data

- (1) (SSM 34-57-21).
- (2) (WDM 34-57-21).

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E. Initial Evaluation

- (1) If the ADF flag shows on the First Officer's display, then do the Fault Isolation below.
- (2) If the ADF flag does not show on the First Officer's display, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (a) If you find an ADF fault, then do these steps:
 - 1) Replace the ADF receiver.
These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 2) If the ADF flag does not show on the captain's display, then you corrected the fault.
 - (b) If you do not find an ADF fault, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If you find an ADF data fault or a DEU internal fault, then go to the applicable fault isolation task for that DEU maintenance message to correct the fault.
 - 1) If the ADF flag does not show on the captain's display, then you corrected the fault.
 - 2) If the ADF flag shows on the captain's display, then continue.
- (3) Do this check of the wiring between the ADF-2 and DEU-2.
 - (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the DEU receiver. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR D3653B	DEU CONNECTOR D3975D
ADF 2	pin B13	pin C3
	pin B14	pin D3

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the DEU. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) If the ADF display is functional, then you have corrected the fault.
- (4) If the ADF flag is not cleared, then do these steps:
 - (a) Replace the ADF-2 antenna.
These are the tasks:
ADF Antenna - Removal, AMM TASK 34-57-01-000-801,

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ADF Antenna - Installation, AMM TASK 34-57-01-400-801.

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———— **END OF TASK** ————

820. ADF Bearing Pointer 1 Does Not Show, ADF Flag Does Not Show - No. 1 - Fault Isolation

A. Description

- (1) The captain's ADF display is does not show bearing pointer 1 or an ADF flag.

B. Possible Causes

- (1) ADF receiver-1, M1731.
(2) Wiring.
(3) Display electronic unit (DEU-1), M1808.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

D. Related Data

- (1) (SSM 34-57-11).
(2) (WDM 34-57-11).

E. Initial Evaluation

- (1) If the bearing pointer does not show on the Captain's display, then do the Fault Isolation below.
(2) If the Captain's display is normal, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
(a) If you find an ADF fault, then do these steps:
1) Replace the ADF receiver.
These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
2) If the Captain's display is normal, then you corrected the fault.
(b) If you do not find an ADF fault, then continue.
(2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
(a) If you find an ADF fault or a DEU internal fault, then go to the applicable fault isolation task for the DEU maintenance message to correct the fault.
1) If the Captain's display is normal, then you corrected the fault.
(b) If you do not find an ADF fault or a DEU internal fault, then continue.
(3) Do this check of the wiring between the applicable ADF-1 and DEU-1.

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- (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
- (b) Remove the DEU receiver. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
- (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR	DEU CONNECTOR
ADF 1	D3651B	D3973A
	pin B13	pin C3
	pin B14	pin D3

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the DEU. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) If the captain's display is normal, then you corrected the fault.

————— **END OF TASK** —————

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821. ADF Bearing Pointer 2 Does Not Show, ADF Flag Does Not Show - No. 2 - Fault Isolation

A. Description

- (1) The first officer's ADF display is does not show bearing pointer 2 or an ADF flag.

B. Possible Causes

- (1) ADF receiver-2, M1732.
- (2) Wiring.
- (3) Display electronic unit (DEU-2), M1809.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C01383	RADIO NAVIGATION ADF 2

D. Related Data

- (1) (SSM 34-57-21).
- (2) (WDM 34-57-21).

E. Initial Evaluation

- (1) If the bearing pointer does not show on the Captain's display, then do the Fault Isolation below.
- (2) If the Captain's display is normal, then there was an intermittent fault.

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F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (a) If you find an ADF fault, then do these steps:
 - 1) Replace the ADF receiver.

These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 2) If the Captain's display is normal, then you corrected the fault.
 - (b) If you do not find an ADF fault, then continue.
- (2) Do this task: CDS BITE Procedure, 31-62 TASK 801.
 - (a) If you find an ADF fault or a DEU internal fault, then go to the applicable fault isolation task for the DEU maintenance message to correct the fault.
 - 1) If the Captain's display is normal, then you corrected the fault.
 - (b) If you do not find an ADF fault or a DEU internal fault, then continue.
- (3) Do this check of the wiring between the applicable ADF-2 and DEU-2.
 - (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the DEU receiver. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR D3653B	DEU CONNECTOR D3975D
ADF 2	pin B13	pin C3
	pin B14	pin D3

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the DEU. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - 4) If the ADF display is functional, then you have corrected the fault.

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————— END OF TASK —————

822. ADF Control Panel Problem - Fault Isolation

A. Description

- (1) The ADF control panel has a failure.

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B. Possible Causes

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- (1) ADF control panel, P8-70.

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- (2) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C01383	RADIO NAVIGATION ADF 2

D. Related Data

- (1) (SSM 34-57-11).
(2) (SSM 34-57-21).
(3) (WDM 34-57-11).
(4) (WDM 34-57-21).

E. Initial Evaluation

- (1) If the ADF control panel frequency display is blank, then replace the ADF receiver. To replace the ADF receiver, do these tasks:
(a) ADF Receiver Removal, AMM TASK 34-57-03-000-801
(b) ADF Receiver Installation, AMM TASK 34-57-03-400-801
(2) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
(a) If the ADF control panel operates correctly, then there was an intermittent fault.
(b) If the ADF control panel has a problem, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
(a) If you find an ADF system fault, then do these steps:
1) Go to the applicable fault isolation task for the maintenance message to correct the fault.
2) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
a) If the ADF control panel operates correctly, then you corrected the fault.
(b) If you do not find any ADF system faults, then continue.

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(2) Do this check for 115 VAC power at the ADF control panel:

- (a) Remove the ADF control panel. To remove it, do this task: ADF Control Panel - Removal, AMM TASK 34-57-02-000-801.

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- (b) Do a check for 115 VAC between pin 10 and pin 8 (ground) of connector D3659 (D3661).

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- (c) If there is not 115 VAC at pin 10, then do these steps:

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- 1) Check and repair the wiring between pin 10 of connector D3659 (D3661) and the circuit breaker.

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- 2) Re-install the ADF control panel. To install it, do this task: ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.
- 3) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
 - a) If the ADF control panel operates correctly, then you corrected the fault.
- (d) If there is 115 VAC at pin 10, then continue.
- (3) Install a new ADF control panel, P8-70. To install it, do this task: ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.
 - (a) If the ADF control panel operates normally, then you corrected the fault.
 - (b) If the ADF control panel problem continues, then continue.
- (4) Do this check of the wiring between the ADF receiver and the ADF control panel:

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- (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.

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- (b) Remove the ADF control panel, P8-70. To remove it, do this task: ADF Control Panel - Removal, AMM TASK 34-57-02-000-801.

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- (c) Do a check for an open circuit between these pins:

	ADF CONNECTOR	PANEL CONNECTOR
ADF 1	D3651B	D3659
	pin B7	pin 12
	pin B8	pin 13
ADF 2	D3653B	D3661
	pin B7	pin 12
	pin B8	pin 13

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- (d) If there is an open circuit, then do these steps:
- 1) Repair the wiring.

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- 2) Re-install the ADF receiver-1 (ADF receiver-2). To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.

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- 3) Re-install the ADF control panel. To install it, do this task: ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.
- 4) Do the ADF System - Audio Test. To do the test, do this task: Automatic Direction Finder System - System Test, AMM TASK 34-57-00-730-802.
 - a) If the ADF control panel operates correctly, then you corrected the fault.

————— **END OF TASK** —————

SIA ALL; AIRPLANES WITH COLLINS ADF RECEIVER

823. ADF Receiver 1 Control Fail - Fault Isolation

A. Description

- (1) This task is for this ADF receiver 1 maintenance message:
 - (a) CONTROL FAIL

B. Possible Causes

- (1) ADF control panel, P8-68 or P8-70.
- (2) Wiring problem.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

D. Related Data

- (1) (SSM 34-57-11).
- (2) (WDM 34-57-11).

E. Initial Evaluation

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (2) If the maintenance message shows, then do the Fault Isolation Procedure below.
 - (3) If the maintenance message does not show, then there was an intermittent fault.
- NOTE: If this message occurs frequently, then the fault can be a loose connection at the sensor.

F. Fault Isolation Procedure

- (1) Replace the ADF control panel.
- These are the tasks:

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ADF Control Panel - Removal, AMM TASK 34-57-02-000-801,
ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.

- (a) Do this task: ADF BITE Procedure, 34-57 TASK 801.
- (b) If the maintenance message does not show during the ADF BITE test, then you corrected the fault.
- (c) If the maintenance message shows during the ADF BITE test, then continue.

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- (2) Do this check of the wiring:
- (3) Remove the ADF control panel. To remove it, do this task: ADF Control Panel - Removal, AMM TASK 34-57-02-000-801.
 - (a) Do a continuity check between pin 8 of connector D3659 and structure ground.
 - (b) If there is not continuity between pin 8 and structure ground, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF control panel. To install it, do this task: ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.
 - 3) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - 4) If the maintenance message does not show during the ADF receiver BITE procedure, then you corrected the fault.
 - (c) If there is continuity between pin 8 and structure ground, then continue.
- (4) Do this check of the wiring:
 - (a) Remove the ADF control panel. To remove it, do this task: ADF Control Panel - Removal, AMM TASK 34-57-02-000-801.
 - (b) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (c) Do a check for an open circuit between these pins of connector D3659 at the ADF control panel and connector D3651C at the ADF receiver:

D3659	D3651C
pin 9	pin 2

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the ADF control panel. To install it, do this task: ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.
 - 4) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - 5) If the maintenance message does not show during the ADF receiver BITE procedure, then you corrected the fault.

———— **END OF TASK** ————

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824. ADF Receiver 2 Control Fail - Fault Isolation

A. Description

- (1) This task is for this ADF receiver-2 maintenance message:
 - (a) CONTROL FAIL

B. Possible Causes

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- (1) ADF control panel, P8-70.

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- (2) Wiring problem.

C. Circuit Breaker

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C01383	RADIO NAVIGATION ADF 2

D. Related Data

- (1) (SSM 34-57-21).
- (2) (WDM 34-57-21).

E. Initial Evaluation

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
- (2) If the maintenance message shows, then do the Fault Isolation Procedure below.
- (3) If the maintenance message does not show, then there was an intermittent fault.
NOTE: If this message occurs frequently, then the fault can be a loose connection at the sensor.

F. Fault Isolation Procedure

- (1) Replace the ADF control panel.

These are the tasks:

ADF Control Panel - Removal, AMM TASK 34-57-02-000-801,

ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.

- (a) Do this task: ADF BITE Procedure, 34-57 TASK 801.
- (b) If the maintenance message does not show during the ADF BITE test, then you corrected the fault.
- (c) If the maintenance message shows during the ADF BITE test, then continue.

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- (2) Do this check of the wiring:
 - (a) Remove the ADF control panel. To remove it, do this task: ADF Control Panel - Removal, AMM TASK 34-57-02-000-801.
 - (b) Do a continuity check between pin 8 of connector D3661 and structure ground.

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- (c) If there is not continuity between pin 8 and structure ground, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF control panel. To install it, do this task: ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.
 - 3) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - 4) If the maintenance message does not show during the ADF receiver BITE procedure, then you corrected the fault.
- (d) If there is continuity between pin 8 and structure ground, then continue.
- (3) Do this check of the wiring:
 - (a) Remove the ADF control panel. To remove it, do this task: ADF Control Panel - Removal, AMM TASK 34-57-02-000-801.
 - (b) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (c) Do a check for an open circuit between these pins of connector D3661 at the ADF control panel and connector D3651C at the ADF receiver:

D3661	D3651C
pin 9	pin 2
- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the ADF control panel. To install it, do this task: ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.
 - 4) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - 5) If the maintenance message does not show during the ADF receiver BITE procedure, then you corrected the fault.

————— **END OF TASK** —————

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825. ADF Receiver-2 Problem - Fault Isolation

A. Description

- (1) This task is for this ADF Receiver-2 Maintenance Message:

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- (a) LRU STATUS (Red LED)

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B. Possible Causes

- (1) ADF Receiver-2, M1732

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- (2) ADF Control Panel, P8-70

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- (3) Wiring Problem

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	17	C01383	RADIO NAVIGATION ADF 2

D. Related Data

- (1) SSM 34-57-21
(2) WDM 34-57-21

E. Initial Evaluation

- (1) Do the ADF BITE Procedure, 34-57 TASK 801.
(2) If the Maintenance Message or Status LED shows during the ADF BITE Procedure, then do the Fault Isolation Procedure below.
(3) If the Maintenance Message does not show during the ADF BITE Procedure, then there was an intermittent problem.

NOTE: If this message occurs frequently, then the problem can be a loose connection at the sensor.

F. Fault Isolation Procedure

- (1) Replace the ADF Receiver-2, M1732. These are the tasks:
- ADF Receiver Removal, AMM TASK 34-57-03-000-801
 - ADF Receiver Installation, AMM TASK 34-57-03-400-801
- (a) If the Installation Test for the ADF Receiver is satisfactory, then you corrected the problem.
(b) If the Maintenance Message shows during the Installation Test for the ADF Receiver, then continue.
- (2) Replace the ADF Control Panel. These are the tasks:
- ADF Control Panel - Removal, AMM TASK 34-57-02-000-801
 - ADF Control Panel - Installation, AMM TASK 34-57-02-400-801
- (a) Do the ADF BITE test. This is the task: ADF BITE Procedure, 34-57 TASK 801.
(b) If the Maintenance Message does not show during the ADF BITE test, then you corrected the problem.
(c) If the Maintenance Message shows during the ADF BITE test, then continue.
- (3) Do this check of the Wiring:
- (a) Remove the ADF Receiver-2, M1732. This is the task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
(b) Do a Continuity Check between pin 4 of Connector D3653C and Structure Ground (WDM 34-57-21).
(c) If there is not continuity between pin 4 and Structure Ground, then do these steps:

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- 1) Repair the Wiring (WDM 34-57-21).
 - 2) Re-install the ADF Receiver-2, M1732. This is the task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Do the ADF BITE Test. This is the task: ADF BITE Procedure, 34-57 TASK 801.
 - 4) If the Maintenance Message does not show during the ADF Receiver BITE Procedure, then you corrected the problem.
- (d) If there is continuity between pin 4 and Structure Ground, then continue.

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- (4) Do this check of the Wiring:
- (a) Do a check for an Open Circuit between these pins of Connector D3661 at the ADF Control Panel, P8-70 and Connector D3653C at the ADF Receiver-2, M1732 (WDM 34-57-21):

D3661	D3653C
pin 9	pin 2

- (b) If there is an Open Circuit, then do these steps:
- 1) Repair the wiring (WDM 34-57-21).
 - 2) Re-install the ADF Receiver-2, M1732. This is the task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the ADF Control Panel, P8-70. This is the task: ADF Control Panel - Installation, AMM TASK 34-57-02-400-801.
 - 4) Do the ADF BITE test. This is the task: ADF BITE Procedure, 34-57 TASK 801.
 - 5) If the Maintenance Message does not show during the ADF BITE Procedure, then you corrected the problem.

———— **END OF TASK** ————

**826. ADF Bearing Pointer 1 Does Not Point to Selected Navaid, ADF Flag Does Not Show - No. 1
(Captain) - Fault Isolation**

A. Description

- (1) The captain's ADF display bearing pointer 1 does not correctly point to the selected station and an ADF flag is not displayed.

B. Possible Causes

- (1) ADF Receiver-1, M1731
- (2) Wiring
- (3) ADF Antenna-1, M1733.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

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D. Related Data

- (1) SSM 34-57-11
- (2) WDM 34-57-11.

E. Initial Evaluation

- (1) If the Captain's ADF bearing pointer does not point to the selected station, or does not lock onto any stations, then do the Fault Isolation below.
- (2) If the Captain's ADF bearing pointer is normal, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
 - (a) If you find an ADF fault, then do these steps:
 - 1) Replace the ADF receiver.
These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 2) If the Captain's display is normal, then you corrected the fault.
 - (b) If you do not find an ADF fault, then continue.
- (2) Do this check of the wiring between the ADF-1 receiver and ADF-1 antenna.
 - (a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
 - (b) Remove the ADF antenna. To remove it, do this task: ADF Antenna - Removal, AMM TASK 34-57-01-000-801.
 - (c) Do a check for an open circuit between these pins:

ADF-1	RECEIVER-1 D3651B	E3-1 SHELF D42163P	ANTENNA-1 D3663
	Pin C10	Pin A7	Pin 10
	Pin C11	Pin A8	Pin 11
	Pin C12	Pin A9	Pin 12
	Pin D1	Pin A1	Pin 1
	Pin D2	Pin A2	Pin 2
	Pin D7	Pin A3	Pin 4
	Pin D8	Pin A4	Pin 5
	Pin D14	Pin A5	Pin 7
	Pin D15	Pin A6	Pin 8

- (d) If there is an open circuit, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the ADF Antenna. To install it, do this task: ADF Antenna - Installation, AMM TASK 34-57-01-400-801.
 - 4) If the Captain's ADF bearing pointer is normal, then you have corrected the fault.
- (3) If the Captain's ADF bearing pointer still does not point to the selected station, then do these steps:

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- (a) Replace the ADF-1 antenna. These are the tasks:
ADF Antenna - Removal, AMM TASK 34-57-01-000-801,
ADF Antenna - Installation, AMM TASK 34-57-01-400-801.

———— **END OF TASK** ————

827. ADF Bearing Pointer 1 Does Not Point to Selected Navaid, ADF Flag Does Not Show - No. 2 (First Officer) - Fault Isolation

A. Description

- (1) The First Officer's ADF display bearing pointer 1 does not correctly point to the selected station and an ADF flag is not displayed.

B. Possible Causes

- (1) ADF Receiver-1, M1731
(2) Wiring
(3) ADF Antenna-1, M1733.

C. Circuit Breakers

- (1) This is the primary circuit breaker related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01382	RADIO NAVIGATION ADF 1

D. Related Data

- (1) SSM 34-57-11
(2) WDM 34-57-11.

E. Initial Evaluation

- (1) If the First Officer's ADF bearing pointer does not point to the selected station, or does not lock onto any stations, then do the Fault Isolation below.
(2) If the First Officer's ADF bearing pointer is normal, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do this task: ADF BITE Procedure, 34-57 TASK 801.
(a) If you find an ADF fault, then do these steps:
1) Replace the ADF receiver.
These are the tasks:
ADF Receiver Removal, AMM TASK 34-57-03-000-801,
ADF Receiver Installation, AMM TASK 34-57-03-400-801.
2) If the First Officer's display is normal, then you corrected the fault.
(b) If you do not find an ADF fault, then continue.
(2) Do this check of the wiring between the ADF-1 receiver and ADF-1 antenna.
(a) Remove the ADF receiver. To remove it, do this task: ADF Receiver Removal, AMM TASK 34-57-03-000-801.
(b) Remove the ADF antenna. To remove it, do this task: ADF Antenna - Removal, AMM TASK 34-57-01-000-801.

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- (c) Do a check for an open circuit between these pins:

ADF-1	RECEIVER-1 D3651B	E3-1 SHELF D42163P	ANTENNA-1 D3663
	Pin C10	Pin A7	Pin 10
	Pin C11	Pin A8	Pin 11
	Pin C12	Pin A9	Pin 12
	Pin D1	Pin A1	Pin 1
	Pin D2	Pin A2	Pin 2
	Pin D7	Pin A3	Pin 4
	Pin D8	Pin A4	Pin 5
	Pin D14	Pin A5	Pin 7
	Pin D15	Pin A6	Pin 8

- (d) If there is an open circuit, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the ADF receiver. To install it, do this task: ADF Receiver Installation, AMM TASK 34-57-03-400-801.
 - 3) Re-install the ADF Antenna. To install it, do this task: ADF Antenna - Installation, AMM TASK 34-57-01-400-801.
 - 4) If the First Officer's ADF bearing pointer is normal, then you have corrected the fault.
- (3) If the First Officer's ADF bearing pointer still does not point to the selected station, then do these steps:
- (a) Replace the ADF-1 antenna. These are the tasks:
ADF Antenna - Removal, AMM TASK 34-57-01-000-801,
ADF Antenna - Installation, AMM TASK 34-57-01-400-801.

———— **END OF TASK** ————

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801. GPS Light Stays On Continuously - Fault Isolation

A. Description

- (1) The GPS light shows on the IRS Mode Select Unit.

B. Possible Causes

- (1) GPS antenna connection (M2102), D2947 or (M2103), D2941.
(2) Multi-mode receiver (MMR-1), M2104 or (MMR-2), M2105.
(3) IRS Mode Select Unit, P5-69.
(4) IRS Master Caution Unit, M1206.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) SSM 34-58-11
(2) SSM 34-58-21
(3) WDM 34-58-11
(4) WDM 34-58-21

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
(a) If the GPS light shows on the IRS Mode Select Unit, then do the Fault Isolation Procedure below.
(b) If the GPS light does not show on the IRS Mode Select Unit, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do the inspection of the GPS antenna connection.
(a) Do this task: Main Ceiling Panel - Removal, AMM TASK 25-21-45-000-803-001.
(b) Inspect the GPS antenna connector (M2102), D2947 or (M2103), D2941 for water contamination and repair if necessary.
(c) Do this task: Main Ceiling Panel - Installation, AMM TASK 25-21-45-400-803-001.
(d) If the GPS light does not show on the IRS Mode Select Unit, then you corrected the fault.
(e) If the GPS light shows on the IRS Mode Select Unit, then continue.
(2) Replace the MMR, (M2104 or M2105). These are the tasks:
• ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801
• ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801
(a) If the GPS light does not show on the IRS Mode Select Unit, then you corrected the fault.

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- (b) If the GPS light shows on the IRS Mode Select Unit, then continue.
- (3) Replace the IRS Mode Select Unit, P5-69. These are the tasks:
- IRS Mode Select Unit Removal, AMM TASK 34-21-03-000-801
 - IRS Mode Select Unit Installation, AMM TASK 34-21-03-400-801
- (a) If the GPS light does not show on the IRS Mode Select Unit, then you corrected the fault.
- (b) If the GPS light shows on the IRS Mode Select Unit, then continue.
- (4) Replace the IRS Master Caution Unit, M1206, on the P61 sidewall panel. These are the tasks:
- IRS Master Caution Unit Removal, AMM TASK 34-21-07-000-801
 - IRS Master Caution Unit Installation, AMM TASK 34-21-07-400-801
- (a) If the GPS light does not show on the IRS Mode Select Unit, then you corrected the fault.
- (b) If the GPS light shows on the IRS Mode Select Unit, then continue.
- (5) Do this check of the wiring:
- (a) Remove the IRS Mode Select Unit. This is the task: IRS Mode Select Unit Removal, AMM TASK 34-21-03-000-801.
- (b) Remove the MMR. This is the task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.
- (c) Remove the IRS MCU. This is the task: IRS Master Caution Unit Removal, AMM TASK 34-21-07-000-801.
- (d) Do a continuity check between the MMR and the IRS MCU:

**IRS MCU
CONNECTOR
D2269**

pin 1 pin C2
pin 2 pin D2

**MMR
CONNECTOR
D10719B**

D2271

pin 1 pin C2
pin 2 pin D2

D10721B

- (e) Do a continuity check between the IRS Mode Select Unit and IRS MCU:

**IRS MSU
CONNECTOR
D2173**

pin 19 pin 3

**IRS MCU
CONNECTOR
D2271**

- (f) If there is not continuity, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the IRS Mode Select Unit. This is the task: IRS Mode Select Unit Installation, AMM TASK 34-21-03-400-801.
 - 3) Re-install the MMR. This is the task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
 - 4) Re-install the IRS MCU. This is the task: IRS Master Caution Unit Installation, AMM TASK 34-21-07-400-801.

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- 5) If the GPS light does not show on the IRS Mode Select Unit, then you corrected the fault.

————— **END OF TASK** —————

802. GPS Light On When Master Caution Pushed - Fault Isolation

A. Description

- (1) The GPS light shows on the IRS Mode Select Unit when the RECALL annunciator, on the IRS Master Caution Unit, is pushed .

B. Possible Causes

- (1) GPS antenna connection (M2102), D2947 or (M2103), D2941.
(2) Multi-mode receiver (MMR-1), M2104 or MMR-2, M2105.
(3) IRS Master Caution Unit, M1206.
(4) IRS Mode Select Unit, P5-69.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) SSM 34-58-11
(2) SSM 34-58-21
(3) WDM 34-58-11
(4) WDM 34-58-21

E. Initial Evaluation

- (1) Do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
(a) If the GPS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then do the Fault Isolation Procedure below.
(b) If the GPS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then there was an intermittent fault.

F. Fault Isolation Procedure

- (1) Do the inspection of the GPS antenna connection.
(a) Do this task: Main Ceiling Panel - Removal, AMM TASK 25-21-45-000-803-001.
(b) Inspect the GPS antenna connector (M2102), D2947 or (M2103), D2941 for water contamination and repair if necessary.
(c) Do this task: Main Ceiling Panel - Installation, AMM TASK 25-21-45-400-803-001.
(d) If the GPS light does not show on the IRS Mode Select Unit, then you corrected the fault.

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- (e) If the GPS light shows on the IRS Mode Select Unit, then continue.
- (2) Replace the MMR, (M2104 or M2105). These are the tasks:
 - ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801
 - ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801
- (a) If the GPS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.
- (b) If the GPS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
- (3) Replace the IRS Mode Select Unit, P5-69. These are the tasks:
 - IRS Mode Select Unit Removal, AMM TASK 34-21-03-000-801
 - IRS Mode Select Unit Installation, AMM TASK 34-21-03-400-801
- (a) If the GPS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.
- (b) If the GPS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
- (4) Replace the IRS Master Caution Unit, M1206, on the P61 sidewall panel. These are the tasks:
 - IRS Master Caution Unit Removal, AMM TASK 34-21-07-000-801
 - IRS Master Caution Unit Installation, AMM TASK 34-21-07-400-801
- (a) If the GPS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.
- (b) If the GPS light shows on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then continue.
- (5) Do this check of the wiring:
 - (a) Remove the IRS Master Caution Unit on P61 sidewall panel. This is the task: IRS Master Caution Unit Removal, AMM TASK 34-21-07-000-801.
 - (b) Remove the MMR. This is the task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.
 - (c) Do a continuity check between the MMR and the applicable IRS Master Caution Unit:

	IRS CONNECTOR	MMR CONNECTOR
IRS MCU P61	D2269	D10719B
	pin 1	pin C2
	pin 2	pin D2
IRS MCU P61	D2271	D10721B
	pin 1	pin C2
	pin 2	pin D2

- (d) If there is not continuity, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the IRS Mode Master Caution Unit on the P61 sidewall panel. This is the task: IRS Master Caution Unit Installation, AMM TASK 34-21-07-400-801.

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- 3) Re-install the MMR. This is the task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
- 4) If the GPS light does not show on the IRS Mode Select Unit when the RECALL annunciator on the IRS Master Caution Unit is pushed, then you corrected the fault.

———— **END OF TASK** ————

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

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801. Flight Management Computer System BITE Procedure

A. General

- (1) You get access to the Flight Management Computer System (FMCS) BITE from the Control Display Unit (CDU).
- (2) These are the items on the FMCS BITE menu that you will use to do this task:
 - (a) SENSORS
 - (b) INFLT FAULT
- (3) SENSORS
 - (a) The FMCS SENSOR STATUS pages show the current status of all sensors that supply data to the Flight Management Computer (FMC). The messages shown are OK, FAIL and TEST:
 - 1) When OK is shown, there are no faults due to that sensor.
 - 2) If FAIL is shown, there are one or more faults due to that sensor.
 - 3) If TEST is shown, the sensor is in test.
 - 4) When dashes (---) are shown, there is no sensor in that location.
 - (b) The FMCS SENSOR DATA page shows data for sensors which have a FAIL status shown on the FMCS SENSOR STATUS page. You put together the failed sensor (Line Replaceable Unit (LRU)) data and the description of the failed test to make a maintenance message. You get access to the FMCS SENSOR DATA page from the FMCS SENSOR STATUS page. This data is shown for each fault:
 - 1) The sensor (LRU) that has FAIL status
 - 2) A description of the failed test
 - 3) The fail reason (rate, parity, Sign Status Matrix (SSM), or reasonableness)
 - 4) If the fault is steady or intermittent (S or I)
 - 5) The time that the fault occurred.
- (4) INFLT FAULT

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- (a) The INFLT FAULT pages show the flights during which faults occurred. The FMCS can show data for nine flights, 1 through 9, where flight 1 is the most recent. In addition, the FMCS can show faults that occurred on the ground since the most recent flight. These are shown as flight G. If an FMC detects a fault for an LRU, the CDU shows the letters L, R or B under the applicable flight G, 1, 2, 3, 4, 5, 6, 7, 8 or 9. The letters L, R, B identify which FMC (left, right or both) detected the failure.

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- (b) The FMCS FLIGHT X pages show fault data that occurred on a flight, or ground period. You put together the failed sensor (LRU) data and the description of the failed test to make a maintenance message. You get access to the FMCS FLIGHT X page from the FMCS INFLT FAULT page. This data is shown for each fault:
 - 1) The sensor (LRU) that has FAIL status.
 - 2) A description of the failed test.
 - 3) The fail reason (rate, parity, SSM, or reasonableness).
 - 4) If the fault is steady or intermittent (S or I).

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- 5) The time that the fault occurred.

B. BITE Procedure

- (1) Make sure that the Air Data Inertial Reference Unit (ADIRU) is in alignment.
- (a) If necessary, align the ADIRU. This is the task: Air Data Inertial Reference System - Alignment from the ISDU, AMM TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, AMM TASK 34-21-00-820-801.
- (2) Do the BITE procedure for the FMCS:

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- (a) Do these steps:
- 1) Set the FMCS transfer switch to the NORMAL position.
 - 2) Push the MENU key.
 - 3) Push the LSK next to <FMC.

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- (b) Push the INIT REF function key on the CDU.
- (c) Push line select key (LSK) 6L, adjacent to INDEX.
- (d) Push LSK 6R (MAINT).
- (e) Push LSK 1L (FMCS).

SIA ALL; AIRPLANES WITH DUAL FMC

- (f) Push the applicable LSK 1L (L FMCS) or LSK 2L (R FMCS).

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- (g) Do these steps to look for maintenance messages on the FMCS SENSOR STATUS page:
- 1) Push LSK next to <SENSORS.
NOTE: This shows the FMCS SENSOR STATUS 1/2 page. You push the NEXT PAGE key to show page 2/2.
 - 2) When the status of all sensors is OK or TEST, there are no currently active faults.
 - a) Do the subtask for FMCS IN FLT FAULTS that follows.
 - b) Push LSK next to INDEX to go back to the FMCS BITE menu.
 - 3) If FAIL shows for any LRU, then do these steps:
NOTE: If there are any active faults detected by the FMCS, you will see FAIL for the applicable LRU.
 - a) Push the keys "1" "0" "0" on the CDU.
 - b) Push LSK 6R.
NOTE: There is no prompt adjacent to LSK 6R.
 - c) Put together the failed sensor (LRU) data and the description of the failed test to make the maintenance message.
 - d) Refer to the table of maintenance messages at the end of this task to find the applicable fault isolation task.
- (h) Do these steps to look for maintenance messages in FMCS IN FLT FAULTS:

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- 1) Push LSK 1L (INFLT FAULTS).

NOTE: This brings you to the FMCS IN FLT FAULTS 1/3 page. Pages 2/3 and 3/3 show more LRUs. Push the NEXT PAGE key to access pages 2/3 and 3/3.

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- 2) If the letters L, R, B are shown adjacent to the LRU, then do these steps.

NOTE: The letters L, R, B identify which FMC (left, right or both) detected the failure.

- a) Push the keys "3" "0" "0" on the CDU.
b) Push LSK 6R.

NOTE: There is no prompt adjacent to LSK 6R.

- c) Put together the failed sensor (LRU) data and the description of the failed test to make the maintenance message.
d) Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance messages.

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LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
FMCS	ADIRS-L - BARO ALT 1 - PARITY	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 1 - RATE	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 1 - REASON	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 1 - SSM	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 2 - PARITY	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 2 - RATE	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 2 - REASON	34-61 TASK 824
FMCS	ADIRS-L - BARO ALT 2 - SSM	34-61 TASK 824
FMCS	ADIRS-L - BUFF OVERFLOW	34-61 TASK 824
FMCS	ADIRS-L - COMP AIR SPD - PARITY	34-61 TASK 824
FMCS	ADIRS-L - COMP AIR SPD - RATE	34-61 TASK 824
FMCS	ADIRS-L - COMP AIR SPD - REASON	34-61 TASK 824
FMCS	ADIRS-L - COMP AIR SPD - SSM	34-61 TASK 824
FMCS	ADIRS-L - DISCRETE 270 - PARITY	34-61 TASK 824
FMCS	ADIRS-L - DISCRETE 270 - REASON	34-61 TASK 824
FMCS	ADIRS-L - DISCRETE 270 - SSM	34-61 TASK 824
FMCS	ADIRS-L - DISCRETE 274 - PARITY	34-61 TASK 824
FMCS	ADIRS-L - DISCRETE 274 - SSM	34-61 TASK 824
FMCS	ADIRS-L - FAIL	34-61 TASK 824
FMCS	ADIRS-L - GND SPEED - PARITY	34-61 TASK 824
FMCS	ADIRS-L - GND SPEED - RATE	34-61 TASK 824
FMCS	ADIRS-L - GND SPEED - REASON	34-61 TASK 824

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FMCS	ADIRS-L - GND SPEED - SSM	34-61 TASK 824
FMCS	ADIRS-L - INERT V SPD - PARITY	34-61 TASK 824
FMCS	ADIRS-L - INERT V SPD - RATE	34-61 TASK 824
FMCS	ADIRS-L - INERT V SPD - REASON	34-61 TASK 824
FMCS	ADIRS-L - INERT V SPD - SSM	34-61 TASK 824
FMCS	ADIRS-L - INERTIAL ALT - PARITY	34-61 TASK 824
FMCS	ADIRS-L - INERTIAL ALT - RATE	34-61 TASK 824
FMCS	ADIRS-L - INERTIAL ALT - REASON	34-61 TASK 824
FMCS	ADIRS-L - INERTIAL ALT - SSM	34-61 TASK 824
FMCS	ADIRS-L - MACH - PARITY	34-61 TASK 824
FMCS	ADIRS-L - MACH - RATE	34-61 TASK 824
FMCS	ADIRS-L - MACH - REASON	34-61 TASK 824
FMCS	ADIRS-L - MACH - SSM	34-61 TASK 824
FMCS	ADIRS-L - MAG HEADING - PARITY	34-61 TASK 824
FMCS	ADIRS-L - MAG HEADING - RATE	34-61 TASK 824
FMCS	ADIRS-L - MAG HEADING - SSM	34-61 TASK 824
FMCS	ADIRS-L - PITCH ANGLE - PARITY	34-61 TASK 824
FMCS	ADIRS-L - PITCH ANGLE - RATE	34-61 TASK 824
FMCS	ADIRS-L - PITCH ANGLE - REASON	34-61 TASK 824
FMCS	ADIRS-L - PITCH ANGLE - SSM	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LAT - PARITY	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LAT - RATE	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LAT - REASON	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LAT - SSM	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LON - PARITY	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LON - RATE	34-61 TASK 824
FMCS	ADIRS-L - PRES POS LON - SSM	34-61 TASK 824
FMCS	ADIRS-L - PRESSURE ALT - PARITY	34-61 TASK 824
FMCS	ADIRS-L - PRESSURE ALT - RATE	34-61 TASK 824
FMCS	ADIRS-L - PRESSURE ALT - REASON	34-61 TASK 824
FMCS	ADIRS-L - PRESSURE ALT - SSM	34-61 TASK 824
FMCS	ADIRS-L - ROLL ANGLE - PARITY	34-61 TASK 824
FMCS	ADIRS-L - ROLL ANGLE - RATE	34-61 TASK 824
FMCS	ADIRS-L - ROLL ANGLE - SSM	34-61 TASK 824
FMCS	ADIRS-L - SAT - PARITY	34-61 TASK 824

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FMCS	ADIRS-L - SAT - RATE	34-61 TASK 824
FMCS	ADIRS-L - SAT - REASON	34-61 TASK 824
FMCS	ADIRS-L - SAT - SSM	34-61 TASK 824
FMCS	ADIRS-L - TAT - PARITY	34-61 TASK 824
FMCS	ADIRS-L - TAT - RATE	34-61 TASK 824
FMCS	ADIRS-L - TAT - REASON	34-61 TASK 824
FMCS	ADIRS-L - TAT - SSM	34-61 TASK 824
FMCS	ADIRS-L - TRUE AIR SPD - PARITY	34-61 TASK 824
FMCS	ADIRS-L - TRUE AIR SPD - RATE	34-61 TASK 824
FMCS	ADIRS-L - TRUE AIR SPD - REASON	34-61 TASK 824
FMCS	ADIRS-L - TRUE AIR SPD - SSM	34-61 TASK 824
FMCS	ADIRS-L - TRUE HEADING - PARITY	34-61 TASK 824
FMCS	ADIRS-L - TRUE HEADING - RATE	34-61 TASK 824
FMCS	ADIRS-L - TRUE HEADING - SSM	34-61 TASK 824
FMCS	ADIRS-L - VEL E-W - PARITY	34-61 TASK 824
FMCS	ADIRS-L - VEL E-W - RATE	34-61 TASK 824
FMCS	ADIRS-L - VEL E-W - REASON	34-61 TASK 824
FMCS	ADIRS-L - VEL E-W - SSM	34-61 TASK 824
FMCS	ADIRS-L - VEL N-S - PARITY	34-61 TASK 824
FMCS	ADIRS-L - VEL N-S - RATE	34-61 TASK 824
FMCS	ADIRS-L - VEL N-S - REASON	34-61 TASK 824
FMCS	ADIRS-L - VEL N-S - SSM	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 1 - PARITY	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 1 - RATE	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 1 - REASON	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 1 - SSM	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 2 - PARITY	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 2 - RATE	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 2 - REASON	34-61 TASK 824
FMCS	ADIRS-R - BARO ALT 2 - SSM	34-61 TASK 824
FMCS	ADIRS-R - BUFF OVERFLOW	34-61 TASK 824
FMCS	ADIRS-R - COMP AIR SPD - PARITY	34-61 TASK 824
FMCS	ADIRS-R - COMP AIR SPD - RATE	34-61 TASK 824
FMCS	ADIRS-R - COMP AIR SPD - REASON	34-61 TASK 824
FMCS	ADIRS-R - COMP AIR SPD - SSM	34-61 TASK 824

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LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
FMCS	ADIRS-R - DISCRETE 270 - PARITY	34-61 TASK 824
FMCS	ADIRS-R - DISCRETE 270 - REASON	34-61 TASK 824
FMCS	ADIRS-R - DISCRETE 270 - SSM	34-61 TASK 824
FMCS	ADIRS-R - DISCRETE 274 - PARITY	34-61 TASK 824
FMCS	ADIRS-R - DISCRETE 274 - SSM	34-61 TASK 824
FMCS	ADIRS-R - FAIL	34-61 TASK 824
FMCS	ADIRS-R - GND SPEED - PARITY	34-61 TASK 824
FMCS	ADIRS-R - GND SPEED - RATE	34-61 TASK 824
FMCS	ADIRS-R - GND SPEED - REASON	34-61 TASK 824
FMCS	ADIRS-R - GND SPEED - SSM	34-61 TASK 824
FMCS	ADIRS-R - INERT V SPD - PARITY	34-61 TASK 824
FMCS	ADIRS-R - INERT V SPD - RATE	34-61 TASK 824
FMCS	ADIRS-R - INERT V SPD - REASON	34-61 TASK 824
FMCS	ADIRS-R - INERT V SPD - SSM	34-61 TASK 824
FMCS	ADIRS-R - INERTIAL ALT - PARITY	34-61 TASK 824
FMCS	ADIRS-R - INERTIAL ALT - RATE	34-61 TASK 824
FMCS	ADIRS-R - INERTIAL ALT - REASON	34-61 TASK 824
FMCS	ADIRS-R - INERTIAL ALT - SSM	34-61 TASK 824
FMCS	ADIRS-R - MACH - PARITY	34-61 TASK 824
FMCS	ADIRS-R - MACH - RATE	34-61 TASK 824
FMCS	ADIRS-R - MACH - REASON	34-61 TASK 824
FMCS	ADIRS-R - MACH - SSM	34-61 TASK 824
FMCS	ADIRS-R - MAG HEADING - PARITY	34-61 TASK 824
FMCS	ADIRS-R - MAG HEADING - RATE	34-61 TASK 824
FMCS	ADIRS-R - MAG HEADING - SSM	34-61 TASK 824
FMCS	ADIRS-R - PITCH ANGLE - PARITY	34-61 TASK 824
FMCS	ADIRS-R - PITCH ANGLE - RATE	34-61 TASK 824
FMCS	ADIRS-R - PITCH ANGLE - REASON	34-61 TASK 824
FMCS	ADIRS-R - PITCH ANGLE - SSM	34-61 TASK 824
FMCS	ADIRS-R - PRES POS LAT - PARITY	34-61 TASK 824
FMCS	ADIRS-R - PRES POS LAT - RATE	34-61 TASK 824
FMCS	ADIRS-R - PRES POS LAT - REASON	34-61 TASK 824
FMCS	ADIRS-R - PRES POS LAT - SSM	34-61 TASK 824
FMCS	ADIRS-R - PRES POS LON - PARITY	34-61 TASK 824
FMCS	ADIRS-R - PRES POS LON - RATE	34-61 TASK 824

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FMCS	ADIRS-R - PRES POS LON - SSM	34-61 TASK 824
FMCS	ADIRS-R - PRESSURE ALT - PARITY	34-61 TASK 824
FMCS	ADIRS-R - PRESSURE ALT - RATE	34-61 TASK 824
FMCS	ADIRS-R - PRESSURE ALT - REASON	34-61 TASK 824
FMCS	ADIRS-R - PRESSURE ALT - SSM	34-61 TASK 824
FMCS	ADIRS-R - ROLL ANGLE - PARITY	34-61 TASK 824
FMCS	ADIRS-R - ROLL ANGLE - RATE	34-61 TASK 824
FMCS	ADIRS-R - ROLL ANGLE - SSM	34-61 TASK 824
FMCS	ADIRS-R - SAT - PARITY	34-61 TASK 824
FMCS	ADIRS-R - SAT - RATE	34-61 TASK 824
FMCS	ADIRS-R - SAT - REASON	34-61 TASK 824
FMCS	ADIRS-R - SAT - SSM	34-61 TASK 824
FMCS	ADIRS-R - TAT - PARITY	34-61 TASK 824
FMCS	ADIRS-R - TAT - RATE	34-61 TASK 824
FMCS	ADIRS-R - TAT - REASON	34-61 TASK 824
FMCS	ADIRS-R - TAT - SSM	34-61 TASK 824
FMCS	ADIRS-R - TRUE AIR SPD - PARITY	34-61 TASK 824
FMCS	ADIRS-R - TRUE AIR SPD - RATE	34-61 TASK 824
FMCS	ADIRS-R - TRUE AIR SPD - REASON	34-61 TASK 824
FMCS	ADIRS-R - TRUE AIR SPD - SSM	34-61 TASK 824
FMCS	ADIRS-R - TRUE HEADING - PARITY	34-61 TASK 824
FMCS	ADIRS-R - TRUE HEADING - RATE	34-61 TASK 824
FMCS	ADIRS-R - TRUE HEADING - SSM	34-61 TASK 824
FMCS	ADIRS-R - VEL E-W - PARITY	34-61 TASK 824
FMCS	ADIRS-R - VEL E-W - RATE	34-61 TASK 824
FMCS	ADIRS-R - VEL E-W - REASON	34-61 TASK 824
FMCS	ADIRS-R - VEL E-W - SSM	34-61 TASK 824
FMCS	ADIRS-R - VEL N-S - PARITY	34-61 TASK 824
FMCS	ADIRS-R - VEL N-S - RATE	34-61 TASK 824
FMCS	ADIRS-R - VEL N-S - REASON	34-61 TASK 824
FMCS	ADIRS-R - VEL N-S - SSM	34-61 TASK 824
FMCS	CDS DEU-L - BUFF OVERFLOW	34-61 TASK 827
FMCS	CDS DEU-L - DISCRETE 272 - PARITY	34-61 TASK 827
FMCS	CDS DEU-L - DISCRETE 272 - SSM	34-61 TASK 827
FMCS	CDS DEU-L - DISCRETE 273 - PARITY	34-61 TASK 827

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FMCS	CDS DEU-L - DISCRETE 273 - SSM	34-61 TASK 827
FMCS	CDS DEU-L - DISCRETE 350 - PARITY	34-61 TASK 827
FMCS	CDS DEU-L - DISCRETE 350 - SSM	34-61 TASK 827
FMCS	CDS DEU-R - BUFF OVERFLOW	34-61 TASK 827
FMCS	CDS DEU-R - DISCRETE 272 - PARITY	34-61 TASK 827
FMCS	CDS DEU-R - DISCRETE 272 - SSM	34-61 TASK 827
FMCS	CDS DEU-R - DISCRETE 273 - PARITY	34-61 TASK 827
FMCS	CDS DEU-R - DISCRETE 273 - SSM	34-61 TASK 827
FMCS	CDS DEU-R - DISCRETE 350 - PARITY	34-61 TASK 827
FMCS	CDS DEU-R - DISCRETE 350 - SSM	34-61 TASK 827
FMCS	CLOCK - BUFF OVERFLOW	34-61 TASK 829
FMCS	CLOCK - DATE - PARITY	34-61 TASK 829
FMCS	CLOCK - DATE - SSM	34-61 TASK 829
FMCS	DFCS - BUFF OVERFLOW	34-61 TASK 825
FMCS	DFCS - DISCRETE 270 - PARITY	34-61 TASK 825
FMCS	DFCS - DISCRETE 270 - SSM	34-61 TASK 825
FMCS	DFCS - DISCRETE 272 - PARITY	34-61 TASK 825
FMCS	DFCS - DISCRETE 272 - SSM	34-61 TASK 825
FMCS	DFCS - DISCRETE 274 - PARITY	34-61 TASK 825
FMCS	DFCS - DISCRETE 274 - REASON	34-61 TASK 825
FMCS	DFCS - DISCRETE 274 - SSM	34-61 TASK 825
FMCS	DFCS - FLAP POS - PARITY	34-61 TASK 825
FMCS	DFCS - FLAP POS - RATE	34-61 TASK 825
FMCS	DFCS - FLAP POS - REASON	34-61 TASK 825
FMCS	DFCS - FLAP POS - SSM	34-61 TASK 825
FMCS	DFCS - FOREIGN COURSE - PARITY	34-61 TASK 825
FMCS	DFCS - FOREIGN COURSE - RATE	34-61 TASK 825
FMCS	DFCS - FOREIGN COURSE - SSM	34-61 TASK 825
FMCS	DFCS - LOCAL COURSE - PARITY	34-61 TASK 825
FMCS	DFCS - LOCAL COURSE - RATE	34-61 TASK 825
FMCS	DFCS - LOCAL COURSE - SSM	34-61 TASK 825
FMCS	DFCS - SELECT ALT - PARITY	34-61 TASK 825
FMCS	DFCS - SELECT ALT - RATE	34-61 TASK 825
FMCS	DFCS - SELECT ALT - REASON	34-61 TASK 825
FMCS	DFCS - SELECT ALT - SSM	34-61 TASK 825

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FMCS	DFCS - TARGET AIRSPEED - PARITY	34-61 TASK 825
FMCS	DFCS - TARGET AIRSPEED - RATE	34-61 TASK 825
FMCS	DFCS - TARGET AIRSPEED - REASON	34-61 TASK 825
FMCS	DFCS - TARGET AIRSPEED - SSM	34-61 TASK 825
FMCS	DME-L - DME DISTANCE - REASON	34-61 TASK 828
FMCS	DME-L - DME DISTANCE - SSM	34-61 TASK 828
FMCS	DME-L - DME FREQUENCY - REASON	34-61 TASK 828
FMCS	DME-R - DME DISTANCE - REASON	34-61 TASK 828
FMCS	DME-R - DME DISTANCE - SSM	34-61 TASK 828
FMCS	DME-R - DME FREQUENCY - REASON	34-61 TASK 828
FMCS	FMC-L - PGM FAULT	34-61 TASK 807
FMCS	FMC-R - PGM FAULT	34-61 TASK 807
FMCS	FQIS - TOTAL FUEL - PARITY	34-61 TASK 826
FMCS	FQIS - TOTAL FUEL - RATE	34-61 TASK 826
FMCS	ILS-L - ILS FREQUENCY - PARITY	34-61 TASK 823
FMCS	ILS-L - ILS FREQUENCY - RATE	34-61 TASK 823
FMCS	ILS-L - LOC DEVIATION - PARITY	34-61 TASK 823
FMCS	ILS-L - LOC DEVIATION - RATE	34-61 TASK 823
FMCS	ILS-R - ILS FREQUENCY - PARITY	34-61 TASK 823
FMCS	ILS-R - ILS FREQUENCY - RATE	34-61 TASK 823
FMCS	ILS-R - LOC DEVIATION - PARITY	34-61 TASK 823
FMCS	ILS-R - LOC DEVIATION - RATE	34-61 TASK 823
FMCS	MMR-L - GPS MAINT	34-61 TASK 834
FMCS	MMR-R - GPS MAINT	34-61 TASK 834
FMCS	VOR-L - VOR BEARING - PARITY	34-61 TASK 822
FMCS	VOR-L - VOR BEARING - RATE	34-61 TASK 822
FMCS	VOR-L - VOR FREQUENCY - PARITY	34-61 TASK 822
FMCS	VOR-L - VOR FREQUENCY - RATE	34-61 TASK 822
FMCS	VOR-R - VOR BEARING - PARITY	34-61 TASK 822
FMCS	VOR-R - VOR BEARING - RATE	34-61 TASK 822
FMCS	VOR-R - VOR FREQUENCY - PARITY	34-61 TASK 822
FMCS	VOR-R - VOR FREQUENCY - RATE	34-61 TASK 822

———— **END OF TASK** ————

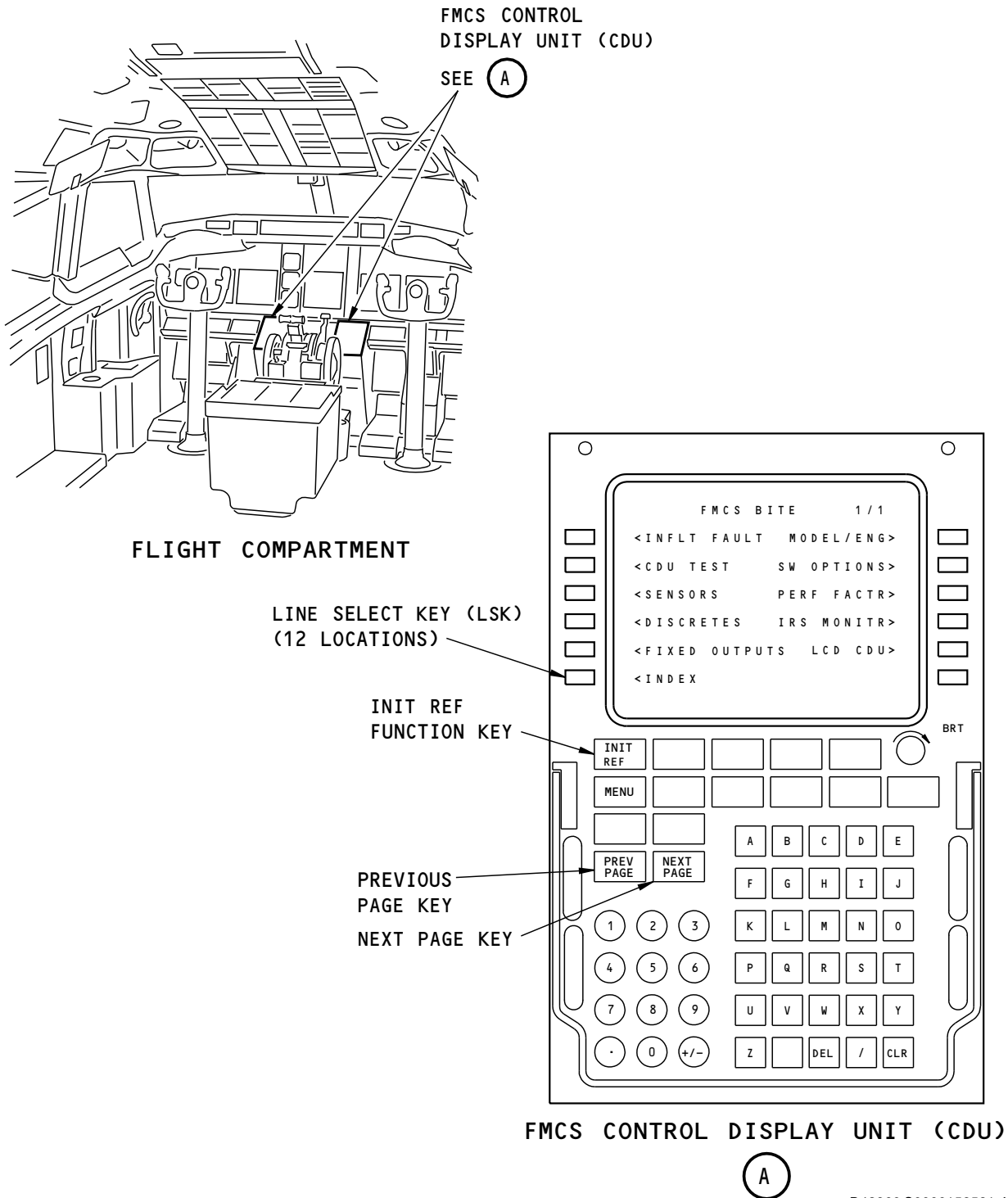
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FMCS BITE Procedure
Figure 201/34-61-00-990-802

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802. CDU Key Does Not Operate - Fault Isolation

A. Description

- (1) An alphanumeric, function, or line select key on the control display unit (CDU) does not operate when expected.

B. Possible Causes

- (1) CDU, P9-65 (captain's) or P9-66 (first officer's).

C. Initial Evaluation

SIA ALL; AIRPLANES WITH DUAL FMC

- (1) Do this test of the CDU keyboard:
 - (a) Set the FMCS transfer switch to the NORMAL position.
 - (b) Push this sequence of keys on the CDU to show the FMCS KEY TEST page:
 - 1) Push the INIT REF key.
 - 2) Push line select key (LSK) 6L (INDEX).
 - 3) Push LSK 6R (MAINT).
 - 4) Push the applicable LSK 1L (L FMCS) or LSK 2L (R FMCS).

SIA ALL; AIRPLANES WITH THE LCD MCDU

- 5) Push LSK 5R (LCD CDU).
- 6) Push LSK 2L (KEY TEST).

NOTE: The CDU KEY TEST page shows all the keys on the CDU keypad.

SIA ALL; AIRPLANES WITH DUAL FMC

- (c) Push the key that you think is defective on the CDU.

SIA ALL; AIRPLANES WITH THE LCD MCDU

- 1) If the name of the key you pushed, is shown shaded white on the display, then there was an intermittent fault.

SIA ALL; AIRPLANES WITH DUAL FMC

- 2) If there is no change to the CDU display, then do the Fault Isolation Procedure below.
- 3) If any of the above keys do not change the CDU display when pushed, then do the Fault Isolation Procedure below.

SIA ALL

D. Fault Isolation Procedure

- (1) Replace the CDU.

These are the tasks:

FMCS Control Display Unit (CDU) Removal, AMM TASK 34-61-01-000-802,

FMCS Control Display Unit (CDU) - Installation, AMM TASK 34-61-01-400-802.

———— **END OF TASK** ————

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803. CDU Display Problem - Fault Isolation

A. Description

- (1) The control display unit (CDU) is too bright, too dim, or out of focus.

B. Possible Causes

- (1) CDU, P9-65 (captain's) or P9-66 (first officer's).

C. Initial Evaluation

- (1) Do this check of the CDU:
- (a) Make sure the light sensors at the top of the CDU are free from dirt and debris.
 - (b) Adjust the brightness control knob on the front panel of the CDU to full brightness and then to minimum brightness. Finally, set an appropriate brightness level.
 - (c) If the CDU display quality did not change, do the Fault Isolation Procedure below.
 - (d) If the CDU is readable and at an appropriate brightness level, then there was an intermittent fault.

D. Fault Isolation Procedure

- (1) Replace the CDU.

These are the tasks:

FMCS Control Display Unit (CDU) Removal, AMM TASK 34-61-01-000-802,

FMCS Control Display Unit (CDU) - Installation, AMM TASK 34-61-01-400-802.

———— **END OF TASK** ————

804. Control Display Unit Blanks - Fault Isolation

A. Description

- (1) The captain's or first officer's control display unit (CDU) screen is blank.

B. Possible Causes

- (1) Control display unit (CDU), P9-65 (captain's) or P9-66 (first officer's).
(2) No power to the CDU.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2

D. Related Data

- (1) (SSM 34-61-11).
(2) (WDM 34-61-11).

E. Initial Evaluation

- (1) Do this check of the control display unit (CDU):

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SIA ALL; AIRPLANES WITH DUAL FMC

- (a) Set the FMCS transfer switch to the NORMAL position.

SIA ALL

- (b) Open these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2

NOTE: These circuit breakers must be opened for at least 10 seconds before you continue.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2

- (d) After 20 seconds, make sure the display unit shows the FMC prompt on the Menu page.
(e) If the Menu page is not shown, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

- (1) Do this exchange of the CDUs:

- (a) Put a tag that reads "SUSPECT" on the CDU that does not operate.
(b) Put a tag that reads "OK" on the CDU that operates.
(c) Exchange the locations of CDU 1, P9-65, and CDU 2, P9-66.

These are the tasks:

FMCS Control Display Unit (CDU) Removal, AMM TASK 34-61-01-000-802,
FMCS Control Display Unit (CDU) - Installation, AMM TASK 34-61-01-400-802.

- (d) If the CDU labeled "SUSPECT" is blank in its new location, then replace the CDU.

These are the tasks:

FMCS Control Display Unit (CDU) Removal, AMM TASK 34-61-01-000-802,
FMCS Control Display Unit (CDU) - Installation, AMM TASK 34-61-01-400-802.

NOTE: If it is your airline's policy, you must return the CDU tagged "OK" to its original location.

- 1) Do the Repair Confirmation at the end of this task.
a) If the Repair Confirmation is OK, then you corrected the fault.
b) Remove the tags from the CDUs.
(e) If the CDU labeled "OK" is blank in its new location, then continue.

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- (2) Do this check for electrical power to the CDU:
- (a) Remove the CDU labeled "OK". To remove it, do this task: FMCS Control Display Unit (CDU) Removal, AMM TASK 34-61-01-000-802.
 - (b) Do a check for 115V AC power between pins 30 and 31 of connector D2181 for the captain's CDU, or connector D2221 for the first officer's CDU.
 - (c) If there is not 115V AC, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the CDU. To install it, do this task: FMCS Control Display Unit (CDU) - Installation, AMM TASK 34-61-01-400-802.
 - 3) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

- (1) Do this check of the control display unit (CDU):

SIA ALL; AIRPLANES WITH DUAL FMC

- (a) Set the FMCS transfer switch to the NORMAL position.

SIA ALL

- (b) Open these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2
D	16	C01262	FMCS CMPTR 2

NOTE: These circuit breakers must be opened for at least 10 seconds before you continue.

- (c) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2
D	16	C01262	FMCS CMPTR 2

- (d) After 20 seconds, make sure the display unit shows the FMC prompt on the Menu page.
- (e) Push the LSK adjacent to the FMC prompt and make sure the IDENT 1/x page is shown on the display unit.
- (f) If the IDENT 1/x page shows on the CDU, then you corrected the fault.

———— **END OF TASK** ————

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805. EXEC Key Does Not Operate - Fault Isolation

A. Description

- (1) The EXEC key on the control display unit (CDU) does not operate when expected.

B. Possible Causes

- (1) EXEC key on the CDU.

C. Initial Evaluation

- (1) Do this test of the EXEC key:
- (a) Push this sequence of keys on the CDU to show the FMCS KEY TEST page:
- 1) Push the INIT REF function key.
 - 2) Push line select key (LSK) 6L (INDEX).
 - 3) Push LSK 6R (MAINT).

SIA ALL; AIRPLANES WITH DUAL FMC

- 4) Push LSK 1L (L FMCS) on CDU 1 (Captain's).
- 5) Push LSK 2L (R FMCS) on CDU 2 (First Officer's).

SIA ALL; AIRPLANES WITH THE LCD MCDU

- 6) Push LSK 5R (LCD CDU).
- 7) Push LSK 2L (KEY TEST).

NOTE: The CDU KEY TEST page shows all the keys on the CDU keypad.

SIA ALL

- (b) Push the EXEC key on the CDU.

SIA ALL; AIRPLANES WITH THE LCD MCDU

- 1) If the "EXE" is shown shaded white then there was an intermittent fault. A second push removes the shaded white area.

SIA ALL

- 2) If there is no change to the CDU display, then do the Fault Isolation Procedure below.

D. Fault Isolation Procedure

SIA ALL; AIRPLANES WITH LCD CDUS

- (1) The LCD CDU (P/N S242A600-XXXX) EXEC key lamps are not line replaceable units. You must replace the keyboard or the CDU. To replace it, do this task: FMCS CDU Keyboard Removal, AMM TASK 34-61-01-000-801
- or, do this task: FMCS Control Display Unit (CDU) Removal, AMM TASK 34-61-01-000-802.

SIA ALL

————— **END OF TASK** —————

806. EXEC Light Does Not Operate - Fault Isolation

A. Description

- (1) The light in the EXEC key on the control display unit (CDU) does not come on when expected.

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B. Possible Causes

- (1) EXEC key on the CDU.

C. Initial Evaluation

- (1) Do this test of the EXEC light:
 - (a) Hold the LIGHTS switch on the pilot's center instrument panel (P2) to the TEST position.
 - 1) Make sure that the light in the EXEC key comes on.
 - (b) Put the LIGHTS switch to the BRT or DIM position as applicable.
 - (c) If the light does not come on, then do the Fault Isolation Procedure below.
 - (d) If the light comes on, then there was an intermittent fault.

D. Fault Isolation Procedure

SIA ALL; AIRPLANES WITH THE LCD MCDU

- (1) The LCD CDU (P/N S242A600-XXXX) EXEC key lamps are not line replaceable units. You must replace the keyboard or the CDU. To replace it, do this task: FMCS CDU Keyboard Removal, AMM TASK 34-61-01-000-801
or, do this task: FMCS Control Display Unit (CDU) Removal, AMM TASK 34-61-01-000-802.

SIA ALL

————— **END OF TASK** —————

807. FMC Hardware/Software Faults - Fault Isolation

A. Description

- (1) The FMC has a hardware or software fault.

SIA ALL; AIRPLANES WITH DUAL FMC

- (2) The CDU can indicate a hardware or software failure if SINGLE FMC OPERATION shows in the scratchpad with the FMCS transfer switch in the NORMAL position, or the FMC prompt does not show on the MENU page. The FMCS BITE can also show maintenance messages that indicate a hardware failure has occurred. The FMC should only be replaced if a hardware failure exists.

SIA ALL

- (3) A program fault occurs when the FMC cannot execute a software instruction. Do not replace the FMC if the only maintenance message shown by the FMC BITE is for a program fault (PGM FAULT).
- (4) For software related issues, no change is required when the latest FMC Operational Software is in use. For earlier version FMC software, some software related faults may be resolved with update to the latest FMC software.
 - (a) If an FMC containing only this kind of fault is returned to GE Aviation, the FMC will pass all tests, and be returned to the customer as No Fault Found.

B. Possible Causes

- (1) Software

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SIA ALL; AIRPLANES WITH DUAL FMC

- (2) Left (Right) FMC, M1175 (M1632)

SIA ALL

- (3) Airplane wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

D. Related Data

- (1) SSM 34-61-11
(2) WDM 34-61-11

E. Initial Evaluation

- (1) Do this test of the FMC:
(a) Open these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

NOTE: This circuit breaker must be open for at least 10 seconds before you continue.

- (b) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

- (c) After 20 seconds, make sure the FMC prompt is shown on the MENU page of the Multifunction Control Display Unit (MCDU).
(d) If the FMC prompt does not show, then do the Fault Isolation Procedure.
(e) If the prompt shows, then there was an intermittent fault.
(2) If FMC - L(R) PGM FAULT is the only maintenance message shown by FMC BITE, do not replace the FMC.

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- (a) For multiple occurrences of this message you may want to do the task, FMC Diagnostic Data Transfer AMM TASK 34-61-00-810-801. For Intermittent faults, there is no need to remove the FMC prior to receiving the diagnostic data analysis. Upon receipt of the diagnostic data analysis, if no hardware faults are identified in the diagnostic data, replacement of the FMC is not required.
- (3) If the FMC BITE shows multiple maintenance messages, FMC - L(R) xxxxxxxx, then do the Fault Isolation Procedure.

F. Fault Isolation Procedure

- (1) Verify the software configuration of the FMC. This is the task: FMC Software Configuration Check, AMM TASK 34-61-00-750-801.
 - (a) If you find a problem with the configuration, then do these steps:
 - 1) Load the correct software for the FMC. This is the task: FMC Software Installation with a Portable Data Loader, AMM TASK 34-61-00-470-805.
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find a problem with the configuration, then continue.
- (2) For the FMC, do this task FMC Diagnostic Data Transfer, AMM TASK 34-61-00-810-801.
 - (a) Do the Repair Confirmation at the end of this task.

SIA ALL; AIRPLANES WITH DUAL FMC

- (3) Replace the FMC, M1175 or M1632.
 - FMCS Computer Removal, AMM TASK 34-61-02-000-801
 - FMCS Computer Installation, AMM TASK 34-61-02-400-801
- (4) If the fault still exists, continue the procedure.
- (5) Do these checks of the airplane wiring.
 - (a) Remove the FMC, M1175 or M1632. This is the task: AMM TASK 34-61-02-000-801.
 - (b) Do a check for 115V AC between pins 1 and 7 of FMC connector D2179C (M1175) or D3261C (M1632) (SSM 34-61-11).
 - (c) Do a check of the wiring between the FMC (M1175 or M1632) and CDUs (SSM 34-61-11).
 - (d) Repair the wiring, if necessary.
 - (e) Re-install the FMC, M1175 or M1632. Do this task: AMM TASK 34-61-02-400-801.

SIA ALL

G. Repair Confirmation

- (1) If the maintenance message(s) does not show, then you corrected the problem.
- (2) If the maintenance message(s) still exists, then continue the Fault Isolation Procedure at the subsequent step.

————— END OF TASK —————

808. NAV DATA OUT OF DATE Message on CDU - Fault Isolation

A. Description

- (1) The active navigation database (NAV DATA) shown on the IDENT 1/x page of the control display unit (CDU) is out of date.

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B. Possible Causes

- (1) FMC database software.

C. Initial Evaluation

- (1) Do these steps to check the navigation database:

SIA ALL; AIRPLANES WITH DUAL FMC

- (a) Set the FMCS transfer switch to the NORMAL position.
- (b) Make sure the two CDUs show the IDENT 1/x page.
 - 1) If the IDENT 1/x page does not show, then do these steps:
 - a) Push the INIT REF function key.
 - b) Push line select key (LSK) 6L (INDEX).
 - c) Push LSK 1L (IDENT).

SIA ALL

- (c) Make sure today's date is within the date range shown adjacent to LSK 2R on the CDU, below ACTIVE.
- (d) If today's date is within the date range shown below ACTIVE, then there was an intermittent fault.
- (e) If today's date is outside of the date range shown below ACTIVE, then do the Fault Isolation Procedure below.

D. Fault Isolation Procedure

- (1) Do this check of the navigation database:

SIA ALL; AIRPLANES WITH DUAL FMC

- (a) Set the FMCS transfer switch to the NORMAL position.

SIA ALL

- (b) Push this sequence of keys on the two CDUs to show the IDENT 1/x page:
 - 1) Push the INIT REF function key.
 - 2) Push LSK 6L (INDEX).
 - 3) Push LSK 1L (IDENT).
 - (c) If today's date is within the date range shown adjacent to LSK 3R, then do these steps:
 - 1) Push LSK 3R.
 - a) Make sure the data shown next to LSK 3R now appears on the bottom of the CDU display (scratchpad).
 - 2) Push LSK 2R.
 - a) Make sure today's date is within the date range now shown adjacent to LSK 2R.
 - b) If today's date is within the date range adjacent to LSK 2R, then you corrected the fault.
 - (d) If today's date is not within the date range shown adjacent to LSK 3R, then continue.
- (2) Install a new navigation database. To install it, do this task: FMC Software Installation with a Portable Data Loader, AMM TASK 34-61-00-470-805.
 - (a) Make sure today's date is within the date range now shown adjacent to LSK 2R.

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- 1) If today's date is within the date range shown adjacent to LSK 2R, then you corrected the fault:

———— **END OF TASK** ————

809. Thrust Mode Does Not Display - Fault Isolation

A. Description

- (1) The thrust mode does not show on the engine display when expected.
- (2) For software related issues, no change is required when the latest FMC Operational Software is in use. For earlier version FMC software, some software related faults may be resolved with update to the latest FMC software.
 - (a) If an FMC containing only this kind of fault is returned to GE Aviation, the FMC will pass all tests, and be returned to the customer as No Fault Found.

B. Possible Causes

- (1) Software

SIA ALL; AIRPLANES WITH DUAL FMC

- (2) Left (Right) FMC, M1175 (M1632)

SIA ALL

- (3) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2
D	16	C01262	FMCS CMPTR 2

D. Initial Evaluation

- (1) Do the FMC fixed outputs test:

SIA ALL; AIRPLANES WITH DUAL FMC

- (a) Set the FMCS Transfer Switch to the NORMAL position.
- (b) Push this sequence of keys on the two CDUs to show the FMCS FIXED OUTPUTS 1/3 page:
 - 1) Push the INIT REF function key.
 - 2) Push line select key (LSK) 6L (INDEX).
 - 3) Push LSK 6R (MAINT).
 - 4) Push LSK 1L (L FMCS) on CDU 1 (captain's).
 - 5) Push LSK 2L (R FMCS) on CDU 2 (first officer's).

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SIA ALL; AIRPLANES WITH DUAL FMC (Continued)

- 6) Push LSK 5L (FIXED OUTPUTS).

SIA ALL

- (c) Make sure the thrust mode on the engine display changes in the order shown on the FMCS FIXED OUTPUTS 1/3 page.
- (d) If the thrust mode display is blank or does not change, then do the Fault Isolation Procedure below.
- (e) If the thrust mode display changes in the order shown on the FMCS FIXED OUTPUTS 1/3 page, then there was an intermittent fault.

E. Fault Isolation Procedure

- (1) Verify the software configuration of the FMC. This is the task: FMC Software Configuration Check, AMM TASK 34-61-00-750-801
 - (a) If you find a problem with the configuration, then do these steps:
 - 1) Load the correct software for the FMC. This is the task: FMC Software Installation with a Portable Data Loader, AMM TASK 34-61-00-470-805.
 - 2) Do the Repair Confirmation at the end of this task.
 - (b) If you do not find a problem with the configuration, then continue.
- (2) For the FMC, do this task: FMC Diagnostic Data Transfer, AMM TASK 34-61-00-810-801.
 - (a) Do the Repair Confirmation at the end of this task.

SIA ALL; AIRPLANES WITH DUAL FMC

- (3) Do this check of the FMC:
 - (a) Set the FMCS transfer switch to the NORMAL position.

SIA ALL

- (b) If the center of CDU 1 (captain's) screen is blank, then replace the left FMC, M1175. These are the tasks:
 - FMCS Computer Removal, AMM TASK 34-61-02-000-801
 - FMCS Computer Installation, AMM TASK 34-61-02-400-801

SIA ALL; AIRPLANES WITH DUAL FMC

- (c) Set the FMCS Transfer Switch to the BOTH ON R position.

SIA ALL

- (d) If the center of CDU 2 (first officer's) screen is blank, then replace the Right FMC, M1632. These are the tasks:
 - FMCS Computer Removal, AMM TASK 34-61-02-000-801
 - FMCS Computer Installation, AMM TASK 34-61-02-400-801
 - (e) If any other data is shown on the CDU, then continue.
- (4) Do this check of the wiring:

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SIA ALL; AIRPLANES WITH DUAL FMC

- (a) Remove the two FMCs, M1175 and M1632. This is the task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.

SIA ALL

- (b) Remove the two CDS DEUs, M1808 and M1809. This is the task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
- (c) Do a continuity check between the FMC, M1175 and the applicable Common Display System (CDS) DEUs:

	FMC (M1175) CONNECTOR	DEU CONNECTOR
DEU 1 (M1808)	D2179A	D3973B
	pin G9	pin C2
	pin H9	pin D2
DEU 2 (M1809)	D2179B	D3975B
	pin D7	pin C2
	pin E7	pin D2

SIA ALL; AIRPLANES WITH DUAL FMC

- (d) Do a continuity check between the FMC, M1632 and the applicable CDS DEUs:

	FMC (M1632) CONNECTOR	DEU CONNECTOR
DEU 1 (M1808)	D3261A	D3973B
	pin G9	pin C2
	pin H9	pin D2
DEU 2 (M1809)	D3261B	D3975B
	pin D7	pin C2
	pin E7	pin D2

SIA ALL

- (e) If there is not continuity, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the CDS DEUs. To install them, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

SIA ALL; AIRPLANES WITH DUAL FMC

- 3) Re-install the FMCs. This is the task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.
- (f) Set the FMCS transfer switch to the NORMAL position.
- (g) Push this sequence of keys on the two CDUs to show the FMCS FIXED OUTPUTS 1/3 page:
- 1) Push the INIT REF function key.
 - 2) Push line select key (LSK) 6L (INDEX).
 - 3) Push LSK 6R (MAINT).

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SIA ALL; AIRPLANES WITH DUAL FMC (Continued)

- 4) Push LSK 1L (L FMCS) on the two CDUs.
- 5) Push LSK 5L (FIXED OUTPUTS).

SIA ALL

- (h) Make sure the thrust mode on the engine display changes in the order shown on the FMCS FIXED OUTPUTS 1/3 page.

SIA ALL; AIRPLANES WITH DUAL FMC

- (i) Set the FMCS transfer switch to the BOTH ON R position.
 - 1) Push the PREV PAGE function key two times.
 - 2) Push LSK 2L (R FMCS) on the two CDUs.
 - 3) Push LSK 5L (FIXED OUTPUTS).
- (j) Make sure the thrust mode on the engine display changes in the order shown on the FMCS FIXED OUTPUTS 1/3 page.

SIA ALL

- (k) If the thrust mode display changes in the order shown on the FMCS FIXED OUTPUTS 1/3 page, then you corrected the fault.

F. Repair Confirmation

- (1) If the maintenance message(s) does not show, then you corrected the problem.
- (2) If the maintenance message(s) still exists, then continue the Fault Isolation Procedure at the subsequent step.

————— **END OF TASK** —————

810. Control Display Unit Annunciator Problem - Fault Isolation

A. Description

- (1) One or all of these control display unit (CDU) annunciators do not operate when expected:

NOTE: The DSPY annunciator does not operate during normal FMC operation.

- (a) FAIL
- (b) MSG
- (c) OFST

B. Possible Causes

- (1) CDU annunciator.

C. Initial Evaluation

- (1) Do this test of the CDU annunciators:
 - (a) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	12	C00314	INDICATOR MASTER DIM SECT 2
E	13	C00315	INDICATOR MASTER DIM SECT 3

- (b) Hold the LIGHTS switch on the pilot's center instrument panel (P2) to the TEST position.
 - 1) Make sure that the DSPY, FAIL, MSG, and OFST annunciators come on.

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- (c) Set the LIGHTS switch to the BRT or DIM position if it is necessary.
- (d) If one or all of the annunciators (DSPY, FAIL, MSG, or OFST) does not come on, then do the Fault Isolation Procedure below.
- (e) If all of the annunciators come on, then there was an intermittent fault.

D. Fault Isolation Procedure

SIA ALL; AIRPLANES WITH THE LCD MCDU

- (1) The LCD CDU (P/N S242A600-XXXX) annunciator lamps are not line replaceable units. You must replace the keyboard or the CDU. To replace it, do this task: FMCS CDU Keyboard Removal, AMM TASK 34-61-01-000-801
or, do this task: FMCS Control Display Unit (CDU) Removal, AMM TASK 34-61-01-000-802.

SIA ALL

————— **END OF TASK** —————

811. OP Program Invalid - Fault Isolation

A. Description

- (1) The operational program software (OP PROGRAM) is not installed or not operational.

B. Possible Causes

- (1) FMC operational program software.

C. Fault Isolation Procedure

- (1) Install new FMC OP program software and databases. To install the software, do this task: FMC Software Installation with a Portable Data Loader, AMM TASK 34-61-00-470-805.

————— **END OF TASK** —————

813. DB EXCEEDS FMC MEMORY Message on CDU - Fault Isolation

A. Description

- (1) The DB EXCEEDS FMC MEMORY message shows on the CDU when the database being installed is larger than the memory in the flight management computer. Contact the applicable airline department for a smaller database or an option code to increase available FMC memory.

————— **END OF TASK** —————

814. RESET COUNT EXCEEDED Message on CDU - Fault Isolation

A. Description

- (1) The RESET COUNT EXCEEDED message shows on the CDU when five load attempts have failed.

————— **END OF TASK** —————

815. DB-OPF INCOMPATIBLE Message on CDU - Fault Isolation

A. Description

- (1) The DB-OPF INCOMPATIBLE message shows on the CDU when the database being installed is incompatible with the FMC software. Contact the applicable airline department for the correct database version.

————— **END OF TASK** —————

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816. CHECK MEDIA Message on CDU - Fault Isolation

A. Description

- (1) The CHECK MEDIA message shows on the CDU when some of the data on the disk is damaged. Contact the applicable airline department for a replacement disk.

————— END OF TASK —————

817. INCORRECT DISK INSERTED Message on CDU - Fault Isolation

A. Description

- (1) The INCORRECT DISK INSERTED message shows on the CDU when a disk of a multi-disk set is put in the data loader out of sequence.

B. Fault Isolation Procedure

- (1) Put the next disk in sequence into the data loader.

————— END OF TASK —————

818. DATA BASE INVALID Message on CDU - Fault Isolation

A. Description

- (1) The DATA BASE INVALID message shows on the CDU when no navigation database (NDB) is installed, or when the FMC has found a problem with the NDB already installed.

B. Initial Evaluation

SIA ALL; AIRPLANES WITH DUAL FMC

- (1) Do this check of the FMC navigation database (NDB):
 - (a) Set the FMCS transfer switch to the NORMAL position.
 - 1) If the message DATA BASE INVALID shows on the CDU, then cycle the circuit breaker for FMC L, (M1175).
 - a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

NOTE: This circuit breaker must be left open for at least 15 seconds.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

- (b) Set the FMCS transfer switch to the BOTH ON R position.
 - 1) If the message DATA BASE INVALID shows on the CDU, then cycle the circuit breaker for the FMC R, (M1632).
 - a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

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NOTE: This circuit breaker must be left open for at least 15 seconds.

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

- 2) If the message DATA BASE INVALID shows on the CDU, then do the Fault Isolation Procedure below.
- 3) If DATA BASE INVALID does not show on the CDUs, then you corrected the fault.

SIA ALL

C. Fault Isolation Procedure

- (1) Install a new navigation database (NDB). To install it, do this task: FMC Software Installation with a Portable Data Loader, AMM TASK 34-61-00-470-805.
- (a) If the software installed successfully, then you corrected the fault.

———— **END OF TASK** ————

819. MODEL/ENG DATA INVALID Message on CDU - Fault Isolation

A. Description

- (1) The MODEL/ENG DATA INVALID message shows on the CDU when no performance database is installed, or when the FMC has found a problem with the performance database already installed.

B. Initial Evaluation

SIA ALL; AIRPLANES WITH DUAL FMC

- (1) Do this check of the FMC performance database:
- (a) Set the FMCS transfer switch to the NORMAL position.
- 1) If the message MODEL/ENG DATA INVALID shows on the CDUs, then cycle the circuit breaker for the left FMC, M1175.
- a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

NOTE: This circuit breaker must be left open for at least 15 seconds.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

- (b) Set the FMCS transfer switch to the BOTH ON R position.
- 1) If the message MODEL/ENG DATA INVALID shows on the CDUs, then cycle the circuit breaker for the right FMC, M1632.

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- a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

NOTE: This circuit breaker must be left open for at least 15 seconds.

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

- (c) If the message MODEL/ENG DATA INVALID shows on the CDUs, then do the Fault Isolation Procedure below.
- (d) If MODEL/ENG DATA INVALID does not show on either CDU, then there was an intermittent fault.

SIA ALL

C. Fault Isolation Procedure

- (1) Install a new performance database. To install it, do this task: FMC Software Installation with a Portable Data Loader, AMM TASK 34-61-00-470-805.

———— **END OF TASK** ————

820. PROGRAM PIN ERROR Message on CDU - Fault Isolation

A. Description

- (1) The PROGRAM PIN ERROR message shows on the CDU when there is a parity error in the FMC airframe/engine program pins, or the Source Destination Identifier (SDI) discrete pin is incorrect.

B. Possible Causes

- (1) Airframe/engine program pins
- (2) SDI discrete pin and program pin
- (3) FMC

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

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D. Related Data

- (1) SSM 34-61-19
- (2) WDM 34-61-19

E. Initial Evaluation

- (1) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - (a) If the FMCS Built-In-Test Equipment (BITE) tests show a fault, then go to the Fault Isolation Task for the applicable FMCS maintenance message to correct the problem.
- (2) Do this check of the FMCS analog discretes:
 - (a) Set the FMCS Transfer Switch to the NORMAL position.
 - (b) Push this sequence of keys on the two CDUs to show the FMCS ANALOG DISC 2/4 page:
 - 1) Push the INIT REF Function Key.
 - 2) Push the Line Select Key (LSK) 6L (INDEX).
 - 3) Push the LSK 6R (MAINT).
 - 4) Push the LSK 1L (L FMCS) on the CDU 1 (Captain's).
 - 5) Push the LSK 2L (R FMCS) on the CDU 2 (First Officer's).
 - 6) Push the LSK 4L (DISCRETES).
 - 7) Push the NEXT PAGE Key.
 - (c) Make sure that the SRCE/DEST IDENT adjacent to LSK 3R shows LEFT on the Captain's CDU.
 - 1) If the SRCE/DEST IDENT shows LEFT, then continue.
 - (d) Make sure that SRCE/DEST IDENT adjacent to LSK 3R shows RIGHT on the First Officer's CDU.
 - 1) If the SRCE/DEST IDENT does not show RIGHT, then do the Fault Isolation Procedure - SDI below for the Right FMC, M1632.
 - 2) If the SRCE/DEST IDENT shows RIGHT, then continue.
 - (e) Push the NEXT PAGE Key on the two CDUs.
 - (f) Make sure that the MODEL/ENG adjacent to LSK 2R shows VALID.
 - 1) If the MODEL/ENG shows VALID, then there was an intermittent problem.
 - 2) If the MODEL/ENG does not show VALID on the Captain's CDU, then do the Fault Isolation Procedure - Model/Engine below for the Left FMC, M1175.
 - 3) If the MODEL/ENG does not show VALID on the First Officer's CDU, then do the Fault Isolation Procedure - Model/Engine below for the Right FMC, M1632.

F. Fault Isolation Procedure - SDI

SIA ALL; AIRPLANES WITH DUAL FMC

- (1) Do this check of the SDI discrete configuration for the Left (Right) FMC (WDM 34-61-19):
 - (a) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

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F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	16	C01262	FMCS CMPTR 2

- (b) Find the FMC's Dip Switch 1, M1990 on P59 near the FMC.
- (c) Make sure that switches 11 and 12 on M1990 are set to the same position as shown on WDM 34-61-19.
 - 1) If the switches are not in the same positions as shown in WDM 34-61-19, then do these steps:
 - a) Set the switches to the switch positions shown in the WDM 34-61-19.
 - b) Do the Repair Confirmation at the end of this task.
 - 2) If the switches are in the correct positions, then continue.
- (2) Do this check of the wiring for the Left (Right) FMC (WDM 34-61-19):
 - (a) Make sure that the CBs are open.
 - (b) Remove the Left (Right) FMC, M1175 (M1632). This is the task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.
 - (c) Do a continuity check as follows:

LEFT FMC

FMC NO.1

D2179B

pin K1	.....	GND
pin K5	.....	GND

RIGHT FMC

FMC NO.2

D3261B

pin K5		GND

FMC NO.2

D3261B

pin K1	.....	pin 11
pin K3	.....	pin 12

FMCS DIP
SWITCH 1

M1990

FMCS DIP
SWITCH 1

M1990

pin 25		GND

- 1) If there is no continuity, then do these steps:
 - a) Repair the wiring.
 - b) Re-install the Left (Right) FMC, M1175 (M1632). This is the task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.

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- c) Do the Repair Confirmation at the end of this task.

SIA ALL

G. Fault Isolation Procedure - Model/Engine

- (1) Do this check of the airframe/engine program pins (WDM 34-61-19):

SIA ALL; AIRPLANES WITH DUAL FMC

- (a) For the Left FMC, M1175, open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

- (b) For the Right FMC, M1632, open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

SIA ALL

- (c) Find the FMCS Dip Switch 1, M1990, on P59 near the FMC.
(d) Make sure that switches 1 through 8 on M1990 are set to the same positions as shown on WDM 34-61-19.

NOTE: You must make sure that the engine/airframe codes on the Wiring Diagram Manual (WDM) are for the current engine configuration.

- 1) If the switches are not in the same positions as shown in the WDM 34-61-19, then do these steps:
- Set the switches to the switch positions shown in the WDM 34-61-19.
 - Do the Repair Confirmation at the end of this task.
- 2) If the switches are in the correct position, then continue.
- (2) Do this check of the wiring (WDM 34-61-19):
- Remove the FMC. This is the task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.

SIA ALL; AIRPLANES WITH DUAL FMC

- (b) For the Left FMC, M1175, do a continuity check as follows:

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FMC NO.1	FMCS DIP SWITCH 1
D2179B	M1990
pin C11	pin 1
pin D11	pin 2
pin E11	pin 3
pin F11	pin 4
pin G11	pin 5
pin H11	pin 6
pin A12	pin 7
pin B12	pin 8

- (c) For the Right FMC, M1632, do a continuity check as follows:

FMC NO.2	FMCS DIP SWITCH 1
D3261B	M1990
pin C11	pin 1
pin D11	pin 2
pin E11	pin 3
pin F11	pin 4
pin G11	pin 5
pin H11	pin 6
pin A12	pin 7
pin B12	pin 8

SIA ALL

- (d) If there is no continuity between these pins, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the FMC. This is the task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.
 - 3) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

SIA ALL; AIRPLANES WITH DUAL FMC

- (1) Do this check of the FMCS analog discretes:
- (a) Set the FMCS Transfer Switch to the NORMAL position.
 - (b) Push this sequence of keys on the two CDUs to show the FMCS ANALOG DISC 2/4 page:
 - 1) Push the INIT REF Function Key.
 - 2) Push the LSK 6L (INDEX).
 - 3) Push the LSK 1L (L FMCS) on the CDU 1 (Captain's).
 - 4) Push the LSK 2L (R FMCS) on the CDU 2 (First Officer's).
 - 5) Push the LSK 4L (DISCRETES).

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- 6) Push the NEXT PAGE Key.
- (c) Make sure that the SRCE/DEST IDENT adjacent to LSK 3R shows LEFT on the Captain's CDU.
- (d) Make sure that the SRCE/DEST IDENT adjacent to LSK 3R shows RIGHT on the First Officer's CDU.
- (e) Push the NEXT PAGE Key on the CDU.
- (f) Make sure that the MODEL/ENG adjacent to LSK 2R shows VALID.
- (g) If the SRCE DEST IDENT shows LEFT and MODEL/ENG shows VALID on the Captain's CDU, then you corrected the problem.
- (h) If the SRCE DEST IDENT shows RIGHT and MODEL/ENG shows VALID on the First Officer's CDU, then you corrected the problem.
- (i) If the SRCE DEST IDENT does not show the correct configuration, then continue the Fault Isolation Procedure at the subsequent step.

SIA ALL

———— **END OF TASK** ————

821. PROGRAM PIN NOT IN DB Message on CDU - Fault Isolation

A. Description

- (1) The PROGRAM PIN NOT IN DB message shows when the FMC airframe/engine program pins do not agree with the data in the model/engine database.

B. Possible Causes

- (1) FMC airframe/engine program pins.
- (2) Model/engine database.

C. Fault Isolation Procedure

- (1) Do this check of the airframe/engine program pins:
 - (a) For the left FMC, M1175, open this circuit breaker and install a safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

- (b) For the right FMC, M1632, open this circuit breaker and install a safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

- (c) Find the FMCS dip switch 1, M1990, on P59 near the FMC.
 - (d) Make sure that switches 1 through 8 on M1990 are set to the same positions as shown on WDM 34-61-19.

NOTE: You must make sure that the engine/airframe codes on the wiring diagram are for the current engine configuration.

- (e) If the switches are not in the same positions as shown in WDM 34-61-19, do these steps:

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- 1) Set the switches to the switch positions shown in WDM 34-61-19.
- 2) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
- (2) Do this check of the wiring:
 - (a) Remove the FMC. To remove it, do this task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.
 - (b) For the left FMC, M1175, do a continuity check between these pins of FMC connector D2179B and FMCS dip switch 1, M1990:

D2179B	M1990
pin C11	pin 1
pin D11	pin 2
pin E11	pin 3
pin F11	pin 4
pin G11	pin 5
pin H11	pin 6
pin A12	pin 7
pin B12	pin 8

- (c) For the right FMC, M1632, do a continuity check between these pins of FMC connector D3261B and FMCS dip switch 1, M1990:

D3261B	M1990
pin C11	pin 1
pin D11	pin 2
pin E11	pin 3
pin F11	pin 4
pin G11	pin 5
pin H11	pin 6
pin A12	pin 7
pin B12	pin 8

- (d) If there is not continuity between these pins, then do these steps:
 - 1) Repair the wiring.
 - 2) Re-install the two FMCs. To install them, do this task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.
 - 3) Do the Repair Confirmation at the end of this task.
 - a) If the Repair Confirmation is not satisfactory, then continue.
 - (e) If there is continuity between the pins, then continue.
 - (3) Install new performance database software:
 - (a) Install new performance database (model/engine database) software that agrees with the airframe/engine program pins. To install it, do this task: FMC Software Installation with a Portable Data Loader, AMM TASK 34-61-00-470-805.
 - (b) Do the Repair Confirmation at the end of this task.

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D. Repair Confirmation

- (1) Do this check of the airframe/engine program pins:
 - (a) Push this sequence of keys on the two CDUs:
 - 1) Push the INIT REF function key.
 - 2) Push LSK 6L (INDEX).
 - 3) Push LSK 6R (MAINT).
 - 4) Push LSK 1L (L FMCS) on CDU 1 (captain's).
 - 5) Push LSK 2L (R FMCS) on CDU 2 (first officer's).
 - 6) Push LSK 1R (MODEL/ENG).
 - (b) Make sure that PROGRAM PIN NOT IN MODEL/ENGINE DATA BASE does not show on this page.
 - (c) If PROGRAM PIN NOT IN MODEL/ENGINE DATA BASE does not show, then you corrected the fault.

————— **END OF TASK** —————

822. VOR Input Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:

NOTE: VOR-L is the same as VOR 1 and VOR-R is the same as VOR 2.

 - (a) VOR-L - VOR BEARING - RATE
 - (b) VOR-L - VOR BEARING - PARITY
 - (c) VOR-L - VOR FREQUENCY - RATE
 - (d) VOR-L - VOR FREQUENCY - PARITY
 - (e) VOR-R - VOR BEARING - RATE
 - (f) VOR-R - VOR BEARING - PARITY
 - (g) VOR-R - VOR FREQUENCY - RATE
 - (h) VOR-R - VOR FREQUENCY - PARITY
- (2) The FMC found a failure in the data from the VOR/MKR receiver.
- (3) These faults can cause the CDU to show FAIL under VOR on the NAV STATUS display.

B. Possible Causes

- (1) VOR/MKR receiver, M1724 (VOR 1) or M1725 (VOR 2)
- (2) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

- (2) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C01375	RADIO NAVIGATION VOR 2

D. Related Data

- (1) SSM 34-51-11
- (2) SSM 34-51-21
- (3) WDM 34-51-11
- (4) WDM 34-51-21

E. Fault Isolation Procedure

- (1) For the applicable VOR/MKR receiver, do the VOR/Marker Beacon Receiver BITE Procedure, 34-51 TASK 801.
 - (a) If the VOR/MKR receiver BITE shows a fault, then go to the task for the applicable maintenance message to correct the fault.
 - 1) Do the Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If the FMCS maintenance message does not show, then you corrected the fault.
 - b) If the FMCS maintenance message shows, then continue.
 - (b) If the VOR/MKR receiver BITE does not show a fault, then continue.
 - (2) Do this check of the wiring:
 - (a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

- (b) For the applicable FMC, do the FMCS Computer Removal, AMM TASK 34-61-02-000-801.

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- (c) For the applicable VOR/MKR receiver, do the VOR/MKR Receiver Removal, AMM TASK 34-51-01-000-801.

SIA ALL; AIRPLANES WITH DUAL FMC

- (d) Do a continuity check between the FMC and the applicable VOR/MKR receiver:

	LEFT FMC CONNECTOR	VOR CONNECTOR	RIGHT FMC CONNECTOR
VOR 1	D2179A	D3623B	D3261A
	pin A1	pin B13	pin A1
	pin B1	pin C13	pin B1
VOR 2	D2179B	D3625B	D3261B
	pin D1	pin B13	pin D1
	pin E1	pin C13	pin E1

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- (e) If there is no continuity, then repair the wiring.
- (f) For the applicable FMC, do the FMCS Computer Installation, AMM TASK 34-61-02-400-801.
- (g) For the applicable VOR/MKR receiver, do the VOR/MKR Receiver Installation, AMM TASK 34-51-01-400-801.
- (h) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

- (i) Do the Flight Management Computer System BITE Procedure, 34-61 TASK 801.
- 1) If the maintenance message does not show, then you corrected the fault.

————— END OF TASK —————

823. ILS Input Problem - Fault Isolation

A. Description

NOTE: ILS-L is the same as MMR/ILS receiver 1 and ILS-R is the same as MMR/ILS receiver 2.

- (1) This task is for these maintenance messages:
- (a) ILS-L - ILS FREQUENCY - RATE
 - (b) ILS-L - ILS FREQUENCY - PARITY
 - (c) ILS-L - LOC DEVIATION - RATE
 - (d) ILS-L - LOC DEVIATION - PARITY
 - (e) ILS-R - ILS FREQUENCY - RATE

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- (f) ILS-R - ILS FREQUENCY - PARITY
- (g) ILS-R - LOC DEVIATION - RATE
- (h) ILS-R - LOC DEVIATION - PARITY
- (2) The flight management computer (FMC) found a failure in the data from the instrument landing system (ILS).
- (3) These faults can cause the CDU to show FAIL under ILS on the NAV STATUS display.

B. Possible Causes

- (1) MMR/ILS receiver, M2104/M1728 (No. 1) or M2105/M1729 (No. 2).
- (2) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

D. Related Data

- (1) (SSM 34-61-13).
- (2) (WDM 34-61-13).

E. Fault Isolation Procedure

- (1) For the applicable MMR/ILS receiver, do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - (a) If a fault is found in the MMR/ILS receiver BITE, then go to the tasks for the applicable MMR/ILS receiver maintenance message to correct the fault.
 - 1) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If the FMCS maintenance message does not show, then you corrected the fault.
 - b) If the FMCS maintenance message shows, then continue.
 - (b) If no fault is found in the MMR/ILS receiver BITE, then continue.
- (2) Do this check of the wiring:
 - (a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

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- (b) Remove the two FMCs, M1175 and M1632. To remove them, do this task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.

SIA ALL

- (c) Remove the applicable MMR/ILS receiver. To remove it, do this task: ILS and Multi-Mode Receiver (MMR) - Removal, AMM TASK 34-31-42-000-801.

SIA ALL; AIRPLANES WITH DUAL FMC

- (d) Do a continuity check between these pins of the connectors for the flight management computer system and the connector for the applicable MMR/ILS receiver:

	LEFT FMC CONNECTOR	MMR/ILS RECEIVER CONNECTOR	RIGHT FMC CONNECTOR
ILS-L (No. 1) (M2104/M1728)	D2179A	D10719B	D3261A
	pin G1	pin G1	pin G1
	pin H1	pin H1	pin H1
ILS-R (No. 2) (M2105/M1729)	D2179B	D10721B	D3261B
	pin G5	pin G1	pin G5
	pin H5	pin H1	pin H5

SIA ALL

- (e) If there is not continuity between these pins, then do these steps:
- 1) Repair the wiring.

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- 2) Re-install the two FMCs. To install them, do this task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.

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- 3) Re-install the MMR/ILS receiver. To install it, do this task: ILS and Multi-Mode Receiver (MMR) - Installation, AMM TASK 34-31-42-400-801.
- 4) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	16	C01262	FMCS CMPTR 2

- 5) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If there is no maintenance message for ILS, then you corrected the fault.

————— **END OF TASK** —————

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824. ADIRS Input Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
- (a) ADIRS-L - BARO ALT 1 - RATE
 - (b) ADIRS-L - BARO ALT 1 - PARITY
 - (c) ADIRS-L - BARO ALT 1 - SSM
 - (d) ADIRS-L - BARO ALT 1 - REASON
 - (e) ADIRS-L - BARO ALT 2 - RATE
 - (f) ADIRS-L - BARO ALT 2 - PARITY
 - (g) ADIRS-L - BARO ALT 2 - SSM
 - (h) ADIRS-L - BARO ALT 2 - REASON
 - (i) ADIRS-L - BUFF OVERFLOW
 - (j) ADIRS-L - COMP AIR SPD - RATE
 - (k) ADIRS-L - COMP AIR SPD - PARITY
 - (l) ADIRS-L - COMP AIR SPD - SSM
 - (m) ADIRS-L - COMP AIR SPD - REASON
 - (n) ADIRS-L - MACH - RATE
 - (o) ADIRS-L - MACH - PARITY
 - (p) ADIRS-L - MACH - SSM
 - (q) ADIRS-L - MACH - REASON
 - (r) ADIRS-L - PRESSURE ALT - RATE
 - (s) ADIRS-L - PRESSURE ALT - PARITY
 - (t) ADIRS-L - PRESSURE ALT - SSM
 - (u) ADIRS-L - PRESSURE ALT - REASON
 - (v) ADIRS-L - SAT - RATE
 - (w) ADIRS-L - SAT - PARITY
 - (x) ADIRS-L - SAT - SSM
 - (y) ADIRS-L - SAT - REASON
 - (z) ADIRS-L - TAT - RATE
 - (aa) ADIRS-L - TAT - PARITY
 - (ab) ADIRS-L - TAT - SSM
 - (ac) ADIRS-L - TAT - REASON
 - (ad) ADIRS-L - TRUE AIR SPD - RATE
 - (ae) ADIRS-L - TRUE AIR SPD - PARITY
 - (af) ADIRS-L - TRUE AIR SPD - SSM
 - (ag) ADIRS-L - TRUE AIR SPD - REASON
 - (ah) ADIRS-L - DISCRETE 270 - PARITY
 - (ai) ADIRS-L - DISCRETE 270 - SSM
 - (aj) ADIRS-L - DISCRETE 270 - REASON

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- (ak) ADIRS-L - DISCRETE 274 - PARITY
- (al) ADIRS-L - DISCRETE 274 - SSM
- (am) ADIRS-L - GND SPEED - RATE
- (an) ADIRS-L - GND SPEED - PARITY
- (ao) ADIRS-L - GND SPEED - SSM
- (ap) ADIRS-L - GND SPEED - REASON
- (aq) ADIRS-L - INERT V SPD - RATE
- (ar) ADIRS-L - INERT V SPD - PARITY
- (as) ADIRS-L - INERT V SPD - SSM
- (at) ADIRS-L - INERT V SPD - REASON
- (au) ADIRS-L - INERTIAL ALT - RATE
- (av) ADIRS-L - INERTIAL ALT - PARITY
- (aw) ADIRS-L - INERTIAL ALT - SSM
- (ax) ADIRS-L - INERTIAL ALT - REASON
- (ay) ADIRS-L - MAG HEADING - RATE
- (az) ADIRS-L - MAG HEADING - PARITY
- (ba) ADIRS-L - MAG HEADING - SSM
- (bb) ADIRS-L - PITCH ANGLE - RATE
- (bc) ADIRS-L - PITCH ANGLE - PARITY
- (bd) ADIRS-L - PITCH ANGLE - SSM
- (be) ADIRS-L - PITCH ANGLE - REASON
- (bf) ADIRS-L - PRES POS LAT - RATE
- (bg) ADIRS-L - PRES POS LAT - PARITY
- (bh) ADIRS-L - PRES POS LAT - SSM
- (bi) ADIRS-L - PRES POS LAT - REASON
- (bj) ADIRS-L - PRES POS LON - RATE
- (bk) ADIRS-L - PRES POS LON - PARITY
- (bl) ADIRS-L - PRES POS LON - SSM
- (bm) ADIRS-L - ROLL ANGLE - RATE
- (bn) ADIRS-L - ROLL ANGLE - PARITY
- (bo) ADIRS-L - ROLL ANGLE - SSM
- (bp) ADIRS-L - TRUE HEADING - RATE
- (bq) ADIRS-L - TRUE HEADING - PARITY
- (br) ADIRS-L - TRUE HEADING - SSM
- (bs) ADIRS-L - VEL E-W - RATE
- (bt) ADIRS-L - VEL E-W - PARITY
- (bu) ADIRS-L - VEL E-W - SSM
- (bv) ADIRS-L - VEL E-W - REASON
- (bw) ADIRS-L - VEL N-S - RATE

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- (bx) ADIRS-L - VEL N-S - PARITY
- (by) ADIRS-L - VEL N-S - SSM
- (bz) ADIRS-L - VEL N-S - REASON
- (ca) ADIRS-L - FAIL
- (cb) ADIRS-R - BARO ALT 1 - RATE
- (cc) ADIRS-R - BARO ALT 1 - PARITY
- (cd) ADIRS-R - BARO ALT 1 - SSM
- (ce) ADIRS-R - BARO ALT 1 - REASON
- (cf) ADIRS-R - BARO ALT 2 - RATE
- (cg) ADIRS-R - BARO ALT 2 - PARITY
- (ch) ADIRS-R - BARO ALT 2 - SSM
- (ci) ADIRS-R - BARO ALT 2 - REASON
- (cj) ADIRS-R - BUFF OVERFLOW
- (ck) ADIRS-R - COMP AIR SPD - RATE
- (cl) ADIRS-R - COMP AIR SPD - PARITY
- (cm) ADIRS-R - COMP AIR SPD - SSM
- (cn) ADIRS-R - COMP AIR SPD - REASON
- (co) ADIRS-R - MACH - RATE
- (cp) ADIRS-R - MACH - PARITY
- (cq) ADIRS-R - MACH - SSM
- (cr) ADIRS-R - MACH - REASON
- (cs) ADIRS-R - PRESSURE ALT - RATE
- (ct) ADIRS-R - PRESSURE ALT - PARITY
- (cu) ADIRS-R - PRESSURE ALT - SSM
- (cv) ADIRS-R - PRESSURE ALT - REASON
- (cw) ADIRS-R - SAT - RATE
- (cx) ADIRS-R - SAT - PARITY
- (cy) ADIRS-R - SAT - SSM
- (cz) ADIRS-R - SAT - REASON
- (da) ADIRS-R - TAT - RATE
- (db) ADIRS-R - TAT - PARITY
- (dc) ADIRS-R - TAT - SSM
- (dd) ADIRS-R - TAT - REASON
- (de) ADIRS-R - TRUE AIR SPD - RATE
- (df) ADIRS-R - TRUE AIR SPD - PARITY
- (dg) ADIRS-R - TRUE AIR SPD - SSM
- (dh) ADIRS-R - TRUE AIR SPD - REASON
- (di) ADIRS-R - DISCRETE 270 - PARITY
- (dj) ADIRS-R - DISCRETE 270 - SSM

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(dk) ADIRS-R - DISCRETE 270 - REASON
(dl) ADIRS-R - DISCRETE 274 - PARITY
(dm) ADIRS-R - DISCRETE 274 - SSM
(dn) ADIRS-R - GND SPEED - RATE
(do) ADIRS-R - GND SPEED - PARITY
(dp) ADIRS-R - GND SPEED - SSM
(dq) ADIRS-R - GND SPEED - REASON
(dr) ADIRS-R - INERT V SPD - RATE
(ds) ADIRS-R - INERT V SPD - PARITY
(dt) ADIRS-R - INERT V SPD - SSM
(du) ADIRS-R - INERT V SPD - REASON
(dv) ADIRS-R - INERTIAL ALT - RATE
(dw) ADIRS-R - INERTIAL ALT - PARITY
(dx) ADIRS-R - INERTIAL ALT - SSM
(dy) ADIRS-R - INERTIAL ALT - REASON
(dz) ADIRS-R - MAG HEADING - RATE
(ea) ADIRS-R - MAG HEADING - PARITY
(eb) ADIRS-R - MAG HEADING - SSM
(ec) ADIRS-R - PITCH ANGLE - RATE
(ed) ADIRS-R - PITCH ANGLE - PARITY
(ee) ADIRS-R - PITCH ANGLE - SSM
(ef) ADIRS-R - PITCH ANGLE - REASON
(eg) ADIRS-R - PRES POS LAT - RATE
(eh) ADIRS-R - PRES POS LAT - PARITY
(ei) ADIRS-R - PRES POS LAT - SSM
(ej) ADIRS-R - PRES POS LAT - REASON
(ek) ADIRS-R - PRES POS LON - RATE
(el) ADIRS-R - PRES POS LON - PARITY
(em) ADIRS-R - PRES POS LON - SSM
(en) ADIRS-R - ROLL ANGLE - RATE
(eo) ADIRS-R - ROLL ANGLE - PARITY
(ep) ADIRS-R - ROLL ANGLE - SSM
(eq) ADIRS-R - TRUE HEADING - RATE
(er) ADIRS-R - TRUE HEADING - PARITY
(es) ADIRS-R - TRUE HEADING - SSM
(et) ADIRS-R - VEL E-W - RATE
(eu) ADIRS-R - VEL E-W - PARITY
(ev) ADIRS-R - VEL E-W - SSM
(ew) ADIRS-R - VEL E-W - REASON

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- (ex) ADIRS-R - VEL N-S - RATE
- (ey) ADIRS-R - VEL N-S - PARITY
- (ez) ADIRS-R - VEL N-S - SSM
- (fa) ADIRS-R - VEL N-S - REASON
- (fb) ADIRS-R - FAIL
- (2) The flight management computer (FMC) found a failure in the data from the air data inertial reference system (ADIRS).
- (3) These faults can cause the position data from the air data inertial reference unit (ADIRU) to not show on the control display unit (CDU).

B. Possible Causes

- (1) ADIRU, M1749 (ADIRU-L) or M1752 (ADIRU-R).
- (2) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Related Data

- (1) (SSM 34-61-13).
- (2) (WDM 34-61-13).

E. Initial Evaluation

- (1) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
- (2) If a maintenance message for the ADIRS with a fault type of BUFF OVERFLOW, FAIL, SSM or REASON shows, then do the Fault Isolation Procedure - BUFF OVERFLOW, FAIL, REASON, and SSM Fault.
- (3) If a maintenance message for the ADIRS with a fault type of RATE or PARITY shows, then do the Fault Isolation Procedure - RATE and PARITY Fault.
- (4) If a maintenance message for the ADIRS does not show, then there was an intermittent fault.

F. Fault Isolation Procedure - BUFF OVERFLOW, FAIL, REASON and SSM Fault

- (1) For the applicable ADIRU, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If you find an ADIRS maintenance message, then do these steps:

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- 1) Go to the fault isolation task for the applicable ADIRS maintenance message to correct the fault.
- 2) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If there is no maintenance message for ADIRS, then you corrected the fault.

G. Fault Isolation Procedure - RATE and PARITY Fault

- (1) For the applicable ADIRU, do this task: ADIRS BITE Procedure, 34-21 TASK 801.
 - (a) If you find an ADIRS maintenance message, then do these steps:
 - 1) Go to the fault isolation task for the applicable ADIRS maintenance message to correct the fault.
 - 2) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If there is no maintenance message for ADIRS, then you corrected the fault.
 - b) If there is still a maintenance message for ADIRS, then continue.
 - (b) If you do not find an ADIRS maintenance message, then continue.
- (2) Do this check of the wiring:
 - (a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC
D	16	C01262	FMCS CMPTR 2

SIA ALL; AIRPLANES WITH DUAL FMC

- (b) Remove the two FMCs, M1175 and M1632. To remove them, do this task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.

SIA ALL

- (c) Remove the applicable ADIRU, M1749 (ADIRU-L) or M1752 (ADIRU-R). To remove it, do this task: Air Data Inertial Reference Unit Removal, AMM TASK 34-21-01-000-801.

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- (d) Do a continuity check between the applicable pins of the connector for the FMC and the connector for the applicable ADIRU:

	LEFT FMC CONNECTOR	ADIRU CONNECTOR	RIGHT FMC CONNECTOR
ADIRU-L (M1749)	D2179A	D3687B	D3261A
	pin A3	pin C10	pin A3
	pin B3	pin C11	pin B3
	D2179A	D3687A	D3261A
	pin D7	pin A9	pin D7
	pin E7	pin B9	pin E7
ADIRU-R (M1752)	D2179B	D3693B	D3261B
	pin A3	pin C10	pin A3
	pin B3	pin C11	pin B3
	D2179B	D3693A	D3261B
	pin D5	pin A9	pin D5
	pin E5	pin B9	pin E5

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- (e) If there is not continuity between these pins, then do these steps:
- 1) Repair the wiring.

SIA ALL; AIRPLANES WITH DUAL FMC

- 2) Re-install the two FMCs. To install them, do this task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.

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- 3) Re-install the ADIRU. To install it, do this task: Air Data Inertial Reference Unit - Installation, AMM TASK 34-21-01-400-801.
- 4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
E	8	C00425	ADIRU LEFT EXC

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC
D	16	C01262	FMCS CMPTR 2

- 5) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
- a) If there is no maintenance message for ADIRU, then you corrected the fault.

———— **END OF TASK** ————

825. DFCS Input Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
- (a) DFCS - BUFF OVERFLOW
 - (b) DFCS - DISCRETE 270 - PARITY
 - (c) DFCS - DISCRETE 270 - SSM
 - (d) DFCS - DISCRETE 272 - PARITY
 - (e) DFCS - DISCRETE 272 - SSM
 - (f) DFCS - DISCRETE 274 - PARITY
 - (g) DFCS - DISCRETE 274 - SSM
 - (h) DFCS - DISCRETE 274 - REASON
 - (i) DFCS - FLAP POS - RATE
 - (j) DFCS - FLAP POS - PARITY
 - (k) DFCS - FLAP POS - SSM
 - (l) DFCS - FLAP POS - REASON
 - (m) DFCS - FOREIGN COURSE - RATE
 - (n) DFCS - FOREIGN COURSE - PARITY
 - (o) DFCS - FOREIGN COURSE - SSM
 - (p) DFCS - LOCAL COURSE - RATE
 - (q) DFCS - LOCAL COURSE - PARITY
 - (r) DFCS - LOCAL COURSE - SSM
 - (s) DFCS - SELECT ALT - RATE
 - (t) DFCS - SELECT ALT - PARITY
 - (u) DFCS - SELECT ALT - SSM
 - (v) DFCS - SELECT ALT - REASON
 - (w) DFCS - TARGET AIRSPEED - RATE
 - (x) DFCS - TARGET AIRSPEED - PARITY
 - (y) DFCS - TARGET AIRSPEED - SSM
 - (z) DFCS - TARGET AIRSPEED - REASON

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- (2) The flight management computer (FMC) found a failure in the data from the digital flight control system (DFCS).

B. Possible Causes

- (1) DFCS mode control panel (MCP), M198.
(2) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	5	C01041	AFCS SYS A SNSR EXC AC
D	2	C01045	AFCS SYS A FCC DC
D	3	C01048	AFCS SYS A ENGAGE INTLK
D	5	C01044	AFCS MCP DC 1

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01046	AFCS SYS B FCC DC
B	4	C00716	AFCS SYS B ENGAGE INTLK
C	2	C01042	AFCS SYS B SNSR EXC AC
C	3	C01047	AFCS MCP DC 2

D. Related Data

- (1) (SSM 34-61-13).
(2) (WDM 34-61-13).

E. Initial Evaluation

- (1) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
(2) If a maintenance message for the DFCS with a fault type of BUFF OVERFLOW, REASON or SSM shows, then do the Fault Isolation Procedure - BUFF OVERFLOW, REASON or SSM Fault.
(3) If a maintenance message for the DFCS with a fault type of RATE or PARITY shows, then do the Fault Isolation Procedure - RATE or PARITY Fault.
(4) If a maintenance message for the DFCS does not show, then there was an intermittent fault.

F. Fault Isolation Procedure - BUFF OVERFLOW, REASON or SSM Fault

- (1) Do this task: Digital Flight Control System (DFCS) BITE Procedure, 22-11 TASK 801.
(a) If you find a DFCS maintenance message, then do these steps:
1) Go to the fault isolation task for the applicable DFCS maintenance message to correct the fault.
2) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
a) If there is no maintenance message for DFCS, then you corrected the fault.

G. Fault Isolation Procedure - RATE or PARITY Fault

- (1) Do this task: Digital Flight Control System (DFCS) BITE Procedure, 22-11 TASK 801.
(a) If you find a DFCS maintenance message, then do these steps:

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- 1) Go to the fault isolation task for the applicable DFCS maintenance message to correct the fault.
- 2) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If there is no maintenance message for DFCS, then you corrected the fault.
 - b) If there is still a maintenance message for DFCS, then continue.
- (b) If you do not find a DFCS maintenance message, then continue.
- (2) Do this check of the wiring:
 - (a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	5	C01041	AFCS SYS A SNSR EXC AC
D	3	C01048	AFCS SYS A ENGAGE INTLK
D	5	C01044	AFCS MCP DC 1

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C00716	AFCS SYS B ENGAGE INTLK
C	3	C01047	AFCS MCP DC 2

SIA ALL; AIRPLANES WITH DUAL FMC

- (b) Remove the two FMCs, M1175 and M1632. To remove them, do this task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.

SIA ALL

- (c) Remove the DFCS mode control panel, M198. To remove it, do this task: DFCS Mode Control Panel Removal, AMM TASK 22-11-34-000-801.

SIA ALL; AIRPLANES WITH DUAL FMC

- (d) Do a continuity check between these pins of connector D2179A for the left FMC or connector D3261A for the right FMC and connector D301 for the MCP:

D2179A OR D3261A	D301
pin G7	pin 2
pin H7	pin 1

SIA ALL

- (e) If there is not continuity between these pins, then do these steps:

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- 1) Repair the wiring.

SIA ALL; AIRPLANES WITH DUAL FMC

- 2) Re-install the two FMCs. To install them, do this task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.

SIA ALL

- 3) Re-install the MCP. To install it, do this task: DFCS Mode Control Panel Installation, AMM TASK 22-11-34-400-801.
- 4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	5	C01041	AFCS SYS A SNSR EXC AC
D	3	C01048	AFCS SYS A ENGAGE INTLK
D	5	C01044	AFCS MCP DC 1

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C00716	AFCS SYS B ENGAGE INTLK
C	3	C01047	AFCS MCP DC 2

- 5) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If there is no maintenance message for DFCS, then you corrected the fault.

———— **END OF TASK** ————

826. FQIS Input Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) FQIS - TOTAL FUEL - RATE
 - (b) FQIS - TOTAL FUEL - PARITY
- (2) The flight management computer (FMC) found a failure in the data from the fuel quantity indicating system (FQIS).

B. Possible Causes

- (1) Fuel quantity processor unit (FQPU), M1827.
- (2) Wiring.

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01441	FUEL FUELING IND
A	5	C00398	FUEL QTY 2
A	6	C00397	FUEL QTY 1

D. Related Data

- (1) (SSM 34-61-13).
(2) (WDM 34-61-13).

E. Fault Isolation Procedure

- (1) Do this task: FQIS Fault Message - 1 OR MORE TANK UNIT OPEN - Fault Isolation, 28-41 TASK 818.
- (a) If you find an FQIS maintenance message, then do these steps:
- 1) Go to the fault isolation task for the applicable FQIS maintenance message to correct the fault.
 - 2) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If there is no maintenance message for FQIS, then you corrected the fault.
 - b) If there is still a maintenance message for FQIS, then continue.
- (b) If you do not find an FQIS maintenance message, then continue.
- (2) Do this check of the wiring:
- (a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01441	FUEL FUELING IND
A	5	C00398	FUEL QTY 2
A	6	C00397	FUEL QTY 1

SIA ALL; AIRPLANES WITH DUAL FMC

- (b) Remove the two FMCs, M1175 and M1632. To remove them, do this task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.

SIA ALL

- (c) Remove the fuel quantity processor unit (FQPU), M1827. To remove it, do this task: Fuel Quantity Processor Unit Removal, AMM TASK 28-41-81-000-801.

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SIA ALL; AIRPLANES WITH DUAL FMC

- (d) Do a continuity check between these pins of connector D2179A for the left FMC or connector D3261A for the right FMC and connector D11306 for the FQPU:

D2179A OR

D3261A

D11306

pin D5	pin 1
pin E5	pin 3

SIA ALL

- (e) If there is not continuity between these pins, then do these steps:

- 1) Repair the wiring.

SIA ALL; AIRPLANES WITH DUAL FMC

- 2) Re-install the two FMCs. To install them, do this task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.

SIA ALL

- 3) Re-install the FQPU. To install it, do this task: Fuel Quantity Processor Unit Installation, AMM TASK 28-41-81-400-801.

SIA ALL; AIRPLANES WITH DUAL FMC

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01441	FUEL FUELING IND
A	5	C00398	FUEL QTY 2
A	6	C00397	FUEL QTY 1

SIA ALL

- 5) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If there is no maintenance message for FQIS, then you corrected the fault.

————— **END OF TASK** —————

827. CDS DEU Input Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:

NOTE: CDS DEU-L is the same as DEU 1 and the CDS DEU-R is the same as DEU 2.

- (a) CDS DEU-L - BUFF OVERFLOW

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- (b) CDS DEU-L - DISCRETE 272 - PARITY
 - (c) CDS DEU-L - DISCRETE 272 - SSM
 - (d) CDS DEU-L - DISCRETE 273 - PARITY
 - (e) CDS DEU-L - DISCRETE 273 - SSM
 - (f) CDS DEU-L - DISCRETE 350 - PARITY
 - (g) CDS DEU-L - DISCRETE 350 - SSM
 - (h) CDS DEU-R - BUFF OVERFLOW
 - (i) CDS DEU-R - DISCRETE 272 - PARITY
 - (j) CDS DEU-R - DISCRETE 272 - SSM
 - (k) CDS DEU-R - DISCRETE 273 - PARITY
 - (l) CDS DEU-R - DISCRETE 273 - SSM
 - (m) CDS DEU-R - DISCRETE 350 - PARITY
 - (n) CDS DEU-R - DISCRETE 350 - SSM
- (2) The flight management computer (FMC) found a failure in the data from the common display system (CDS) display electronic unit (DEU).

B. Possible Causes

- (1) CDS DEU, M1808 (DEU 1) or M1809 (DEU 2).
- (2) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C01369	DISPLAY CAPT EFIS CONT PANEL
D	2	C01372	DISPLAY CTR UPR
D	3	C01365	DISPLAY CAPT INBD
D	4	C01363	DISPLAY CAPT OUTBD
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP

D. Related Data

- (1) (SSM 34-61-13).
- (2) (WDM 34-61-13).

E. Initial Evaluation

- (1) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
- (2) If a maintenance message for the DEU with a fault type of BUFF OVERFLOW, REASON or SSM shows, then do the Fault Isolation Procedure - BUFF OVERFLOW, REASON or SSM Fault.
- (3) If a maintenance message for the DEU with a fault type of RATE or PARITY shows, then do the Fault Isolation Procedure - RATE or PARITY Fault.

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(4) If a maintenance message for the DEU does not show, then there was an intermittent fault.

F. Fault Isolation Procedure - BUFF OVERFLOW, REASON or SSM Fault

(1) For the applicable DEU, do this task: CDS BITE Procedure, 31-62 TASK 801.

(a) If you find a CDS maintenance message, then do these steps:

- 1) Go to the fault isolation task for the applicable CDS maintenance message to correct the fault.
- 2) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.

a) If there is no maintenance message for DEU, then you corrected the fault.

G. Fault Isolation Procedure - RATE or PARITY Fault

(1) For the applicable DEU, do this task: CDS BITE Procedure, 31-62 TASK 801.

(a) If you find a CDS maintenance message, then do these steps:

- 1) Go to the fault isolation task for the applicable CDS maintenance message to correct the fault.
- 2) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.

a) If there is no maintenance message for DEU, then you corrected the fault.

b) If there is still a maintenance message for CDS DEU, then continue.

(b) If you do not find a CDS maintenance message, then continue.

(2) Do this check of the wiring:

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
D	1	C01369	DISPLAY CAPT EFIS CONT PANEL
D	2	C01372	DISPLAY CTR UPR
D	3	C01365	DISPLAY CAPT INBD
D	4	C01363	DISPLAY CAPT OUTBD
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	16	C01262	FMCS CMPTR 2

SIA ALL; AIRPLANES WITH DUAL FMC

(b) Remove the two FMCs, M1175 and M1632. To remove them, do this task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.

SIA ALL

(c) Remove the applicable CDS DEU, M1808 (DEU 1) or M1809 (DEU 2). To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

(d) Do a continuity check between the applicable pins of connector D2179A for the left FMC and the connector for the applicable DEU:

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	FMC (M1175) CONNECTOR	DEU CONNECTOR
DEU 1 (M1808)	D2179A	D3973B
	pin G15	pin A15
	pin H15	pin B15
DEU 2 (M1809)	D2179A	D3975B
	pin G3	pin A15
	pin H3	pin B15

SIA ALL; AIRPLANES WITH DUAL FMC

- (e) Do a continuity check between the applicable pins of connector D3261A for the right FMC and the connector for the applicable DEU:

	FMC (M1632) CONNCECTOR	DEU CONNECTOR
DEU 1 (M1808)	D3261A	D3973B
	pin G15	pin A15
	pin H15	pin B15
DEU 2 (M1809)	D3261A	D3975B
	pin G3	pin A15
	pin H3	pin B15

SIA ALL

- (f) If there is not continuity between these pins, then do these steps:
- 1) Repair the wiring.

SIA ALL; AIRPLANES WITH DUAL FMC

- 2) Re-install the two FMCs. To install them, do this task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.

SIA ALL

- 3) Re-install the DEU. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
- 4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
D	1	C01369	DISPLAY CAPT EFIS CONT PANEL
D	2	C01372	DISPLAY CTR UPR
D	3	C01365	DISPLAY CAPT INBD
D	4	C01363	DISPLAY CAPT OUTBD
D	5	C01359	DISPLAY DEU 1 PRI

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	16	C01262	FMCS CMPTR 2

- 5) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
- a) If there is no maintenance message for CDS DEU, then you corrected the fault.

————— **END OF TASK** —————

828. DME Input Problem - Fault Isolation

A. Description

NOTE: DME-L is the same as DME 1 and the DME-R is the same as DME 2.

- (1) This task is for these maintenance messages:
- (a) DME-L - DME DISTANCE - SSM
 - (b) DME-L - DME DISTANCE - REASON
 - (c) DME-L - DME FREQUENCY - REASON
 - (d) DME-R - DME DISTANCE - SSM
 - (e) DME-R - DME DISTANCE - REASON
 - (f) DME-R - DME FREQUENCY - REASON
- (2) The FMC found a failure in the data from the Distance Measuring Equipment (DME) interrogator.

B. Possible Causes

- (1) DME interrogator, M164 (DME-L) or M165 (DME-R).
- (2) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	14	C00192	RADIO NAVIGATION DME 2

D. Related Data

- (1) (SSM 34-55-11).
- (2) (WDM 34-55-11).

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E. Initial Evaluation

- (1) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
- (2) If a maintenance message for the DME with a fault type of REASON or SSM shows, then do the Fault Isolation Procedure - REASON or SSM Fault.
- (3) If a maintenance message for the DME with a fault type of RATE or PARITY shows, then do the Fault Isolation Procedure - RATE or PARITY Fault.
- (4) If a maintenance message for the DME does not show, then there was an intermittent fault.

F. Fault Isolation Procedure - REASON or SSM Fault

- (1) For the applicable DME interrogator, do this task: DME Interrogator BITE Procedure, 34-55 TASK 801.
 - (a) If you find a DME maintenance message, then do these steps:
 - 1) Go to the fault isolation task for the applicable DME maintenance message to correct the fault.
 - 2) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If there is no maintenance message for DME, then you corrected the fault.

G. Fault Isolation Procedure - RATE or PARITY Fault

- (1) For the applicable DME interrogator, do this task: DME Interrogator BITE Procedure, 34-55 TASK 801.
 - (a) If you find a DME maintenance message, then do these steps:
 - 1) Go to the fault isolation task for the applicable DME maintenance message to correct the fault.
 - 2) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If there is no maintenance message for DME, then you corrected the fault.
 - b) If there is still a maintenance message for DME, then continue.
 - (b) If you do not find a DME maintenance message, then continue.
- (2) Do this check of the wiring:
 - (a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00190	RADIO NAVIGATION DME 1

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	14	C00192	RADIO NAVIGATION DME 2
D	16	C01262	FMCS CMPTR 2

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- (b) Remove the two FMCs, M1175 and M1632. To remove them, do this task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.

SIA ALL

- (c) Remove the applicable DME interrogator, M164 (DME-L) or M165 (DME-R). To remove it, do this task: DME Interrogator Removal, AMM TASK 34-55-21-000-801.

SIA ALL; AIRPLANES WITH DUAL FMC

- (d) Do a continuity check between the applicable pins of the connector for the FMCs, the connector for the applicable DME interrogator:

	LEFT FMC CONNECTOR	DME CONNECTOR	RIGHT FMC CONNECTOR
DME-L (M164)	D2179A	D161B	D3261A
	pin D1	pin G1	pin D1
	pin E1	pin H1	pin E1
DME-R (M165)	D2179B	D169B	D3261B
	pin G7	pin G1	pin G7
	pin H7	pin H1	pin H7

SIA ALL

- (e) If there is not continuity between these pins, then do these steps:
- 1) Repair the wiring.

SIA ALL; AIRPLANES WITH DUAL FMC

- 2) Re-install the FMC. To install it, do this task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.

SIA ALL

- 3) Re-install the DME interrogator. To install it, do this task: DME Interrogator Installation, AMM TASK 34-55-21-400-801.
- 4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2
D	16	C01262	FMCS CMPTR 2

- 5) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.

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- a) If there is no maintenance message for CDS DEU, then you corrected the fault.

————— **END OF TASK** —————

829. Clock Input Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
- (a) CLOCK - BUFF OVERFLOW
 - (b) CLOCK - DATE - PARITY
 - (c) CLOCK - DATE - SSM
- (2) The FMC has detected a failure for the data coming from the captain's clock.

B. Possible Causes

- (1) Captain's clock.
(2) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00736	MISC CLOCK DISPLAY
A	2	C00737	MISC CLOCK

D. Related Data

- (1) (SSM 31-22-11).
(2) (WDM 31-22-11).

E. Initial Evaluation

- (1) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
(2) If a maintenance message for the clock with a fault type of BUFF OVERFLOW or SSM shows, then do the Fault Isolation Procedure - BUFF OVERFLOW or SSM Fault.
(3) If a maintenance message for the clock with a fault type of PARITY shows, then do the Fault Isolation Procedure - PARITY Fault.
(4) If a maintenance message for the clock does not show, then there was an intermittent fault.

F. Fault Isolation Procedure - BUFF OVERFLOW or SSM Fault

- (1) Do this task: Captain's Clock Problem - Fault Isolation, 31-25 TASK 801.
(a) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
1) If the maintenance message does not show, then you corrected the fault.

G. Fault Isolation Procedure - PARITY Fault

- (1) Do this task: Captain's Clock Problem - Fault Isolation, 31-25 TASK 801.
(a) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
1) If the maintenance message does not show, then you corrected the fault.
2) If the maintenance message shows, then continue.
(2) Do this check of the wiring:

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- (a) Remove the two FMCs, M1175 and M1632. To remove them, do this task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00190	RADIO NAVIGATION DME 1

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	14	C00192	RADIO NAVIGATION DME 2
D	16	C01262	FMCS CMPTR 2

- (c) Remove the clock. To remove it, do this task: Clock Removal, AMM TASK 31-25-11-000-801.

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- (d) Do a continuity check between these pins of connector D2179B for the left FMC and connector D3261B for the right FMC and connector D714 for the clock:

D2179B OR

<u>D3261B</u>	<u>D714</u>
pin D3	pin 24
pin E3	pin 23

SIA ALL

- (e) If there is not continuity between these pins, then do these steps:
- 1) Repair the wiring.

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- 2) Re-install the FMCs. To install it, do this task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.

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- 3) Re-install the clock. To install it, do this task: Clock Installation, AMM TASK 31-25-11-400-801.
- 4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00190	RADIO NAVIGATION DME 1

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CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	14	C00192	RADIO NAVIGATION DME 2
D	16	C01262	FMCS CMPTR 2

- 5) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If there is no maintenance message for clock, then you corrected the fault.

END OF TASK

830. MAP RANGE DISAGREE Message Shows on CDS - Fault Isolation

A. Description

- (1) The display electronic unit (DEU) senses a failure in the range data from the flight management computer (FMC). The FMC range data does not agree with the data from the EFIS control panel and the weather radar receiver/transmitter.

B. Possible Causes

- (1) Wiring.

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	16	C01262	FMCS CMPTR 2

D. Initial Evaluation

- (1) Make sure the WXR switch on the captain's EFIS control panel is selected.
- (2) Make sure the CONTROL PANEL switch on the instrument switching module is set to NORMAL.
 - (a) If the MAP RANGE DISAGREE message does not show on either display, then there was an intermittent fault.

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- (3) Set the FMCS transfer switch to the BOTH ON L position.
 - (a) If the MAP RANGE DISAGREE message shows on the captain's or first officer's display, then do the the Fault Isolation Procedure below.

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E. Fault Isolation Procedure

- (1) Do this check of the wiring:
- (a) Remove the FMC. To remove it, do this task: FMCS Computer Removal, AMM TASK 34-61-02-000-801.
 - (b) Remove the DEU. To remove it, do this task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.
 - (c) Do a continuity check between the applicable pins of the connector for the FMC and the connector for the applicable DEU:

	FMC (M1175) CONNECTOR	DEU CONNECTOR
DEU 1 (M1808)	D2179A	D3973B
	pin G15	pin A15
	pin H15	pin B15
DEU 2 (M1809)	D2179A	D3975B
	pin G3	pin A15
	pin H3	pin B15

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- (d) Do a continuity check between the applicable pins of connector for the FMC and the connector for the applicable DEU:

	FMC (M1632) CONNECTOR	DEU CONNECTOR
DEU 1 (M1808)	D3261A	D3973B
	pin G15	pin A15
	pin H15	pin B15
DEU 2 (M1809)	D3261A	D3975B
	pin G3	pin A15
	pin H3	pin B15

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- (e) If there is not continuity between these pins, then do these steps:
- 1) Repair the wiring.
 - 2) Re-install the FMC. To install it, do this task: FMCS Computer Installation, AMM TASK 34-61-02-400-801.
 - 3) Re-install the DEU. To install it, do this task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
 - a) If the MAP RANGE DISAGREE message does not show on either display, then you corrected the fault.

———— **END OF TASK** ————

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832. FMC Nav data crossloading problem - Fault Isolation

A. Description

- (1) The OP PROGRAM CROSSLOAD page or the DATABASE CROSSLOAD page is automatically shown on the CDU when the software or databases on the FMC do not agree.
- (2) The RESYNC FAIL message shows on the CDU when the software or databases on the FMC do not agree.

B. Initial Evaluation

- (1) Do this check of the FMC performance database:
 - (a) Set the FMCS transfer switch to the NORMAL position.
 - (b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

NOTE: This circuit breaker must be left open for at least 15 seconds.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

- (d) If the OP PROGRAM CROSSLOAD page or the DATABASE CROSSLOAD page is shown on the captain's CDU, then do the Fault Isolation Procedure below for the left FMC, M1175.

- (e) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

NOTE: This circuit breaker must be left open for at least 15 seconds.

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

- (g) If the OP PROGRAM CROSSLOAD page or the DATABASE CROSSLOAD page is shown on the first officer's CDU, then do the Fault Isolation Procedure below for the right FMC, M1632.

- (h) If the OP PROGRAM CROSSLOAD page or the DATABASE CROSSLOAD page is not shown on either CDU, then there was an intermittent fault.

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C. Fault Isolation Procedure

- (1) Do a crossload of the applicable software or databases of the FMC. This is the task FMC Software Crossload, AMM TASK 34-61-00-470-806.
 - (a) If the CROSSLOAD FAIL message is not shown on the CDU, then you corrected the fault.
 - (b) If the CROSSLOAD FAIL message is shown on the CDU, then continue.
- (2) Install the applicable software or databases to the FMC. This is the task: FMC Software Installation with a Portable Data Loader, AMM TASK 34-61-00-470-805.
 - (a) If the LOAD FAILURE and DATA LOAD INOP is not shown on the CDU, then you corrected the fault.

SIA ALL

————— END OF TASK —————

834. GPS Input Problem - Fault Isolation

A. Description

- (1) This task is for these maintenance messages:
 - (a) MMR-L - GPS MAINT
 - (b) MMR-R - GPS MAINT
- (2) A 6-character maintenance code follows the maintenance message.
 - (a) The second character tells the type of problem.
 - 1) If the maintenance code is X1XXXX (where X is a character), then the GPS BITE found a problem.
 - 2) If the code is X2XXXX, then there is a problem with GPS RF Input.
 - 3) If the code is X3XXXX, then the GPS BITE found a problem or there is a problem with the GPS RF input.
 - 4) If the code is X4XXXX, then there is a problem with the GPS Receiver.

B. Possible Causes

- (1) Multi-mode receiver (MMR-L), M2104 or (MMR-R), M2105.
- (2) GPS antenna connector, D2941 or D2947.
- (3) GPS antenna, M2102 or M2103.

C. Circuit breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

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D. Related Data

- (1) (SSM 34-58-11).
- (2) (SSM 34-58-21).
- (3) (WDM 34-58-11).
- (4) (WDM 34-58-21).

E. Fault Isolation Procedure

- (1) Look at the maintenance code.
 - (a) If the code is X1XXXX, X3XXXX or X4XXXX (where X is a character), start with the BITE procedure of the Multi-Mode Receiver.
 - (b) If the code is X2XXXX, start with the inspection of the GPS antenna connector.
- (2) For the applicable MMR receiver, do this task: ILS or Multi-Mode Receiver BITE Procedure, 34-31 TASK 801.
 - (a) If a fault is found in the MMR receiver BITE, then go to the tasks for the applicable MMR receiver maintenance message to correct the fault.
 - 1) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If the FMCS maintenance message does not show, then you corrected the fault.
 - b) If the FMCS maintenance message shows, then continue.
 - (b) If no fault is found in the MMR receiver BITE, then continue.
 - (3) Do the inspection of the GPS antenna connector:
 - (a) Do this task: Main Ceiling Panel - Removal, AMM TASK 25-21-45-000-803-001.
 - (b) Inspect the GPS antenna connector:
 - 1) If the MMR-L message shows, inspect the left GPS antenna connector, D2941 for water contamination and repair if necessary.
 - 2) If the MMR-R message shows, inspect the right GPS antenna connector, D2947 for water contamination and repair if necessary.
 - 3) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If the FMCS maintenance message does not show, then you corrected the fault.
 - b) If the FMCS maintenance message shows, then continue.
 - (c) Do this task: Main Ceiling Panel - Installation, AMM TASK 25-21-45-400-803-001.
 - (4) Replace the GPS Antenna:
 - (a) If MMR-L message shows, replace the left GPS Antenna, M2103.

These are the tasks:

GPS Antenna - Removal, AMM TASK 34-58-02-000-802,
GPS Antenna - Installation, AMM TASK 34-58-02-400-802.
 - (b) If MMR-R message shows, replace the right GPS Antenna, M2102.

These are the tasks:

GPS Antenna - Removal, AMM TASK 34-58-02-000-802,

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GPS Antenna - Installation, AMM TASK 34-58-02-400-802.

- 1) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - a) If the FMCS maintenance message does not show, then you corrected the fault.

————— **END OF TASK** —————

835. FMC DISAGREE Message on CDU - Fault Isolation

A. Description

- (1) During approach or when the airplane is on the ground, the FMC senses a disagreement in monitored parameters required for dual FMC operation.

B. Possible Causes

- (1) Synchronization error between the two FMCs
- (2) Left (Right) Pack Valve, V18 (V19)
- (3) Wiring

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

D. Initial Evaluation

- (1) Do these steps if the logbook indicates the message was shown inflight or the message is shown on the ground.
 - (a) Open these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

- (b) Wait 15 seconds.
- (c) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

- (2) If the FMC DISAGREE message does not show on either display after 5 minutes, then there was an intermittent fault. For multiple occurrences of this message you may want to do these tasks, Flight Management Computer System BITE Procedure, 34-61 TASK 801 and/or FMC Diagnostic Data Transfer, AMM TASK 34-61-00-810-801.
- (3) If the FMC displays the message FMC DISAGREE on the ground:
 - (a) A mismatch of these FMC inputs between the Left and Right FMC will result in display of this message when the airplane is on the ground:
 - Cowl Anti Ice L
 - Cowl Anti Ice R
 - ECS Pack L
 - ECS Pack R
 - ECS Pack HI LO L
 - ECS Pack HI LO R
 - Engine Bleed No 1
 - Engine Bleed No 2
 - Isolation Valve
 - Wing Anti Ice
 - Airplane Lat/Long position
 - Mag/True
 - (b) To isolate which input is the cause for the condition, do the Fault Isolation Procedure below.
- (4) If the FMC DISAGREE message shows on either display, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

- (1) Do this task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
- (2) Examine the FMC BITE Maintenance Analog Discrete pages:
 - (a) Examine the FMC LEFT on the Left CDU and FMC RIGHT on the Right CDU and page through the Analog Discrete pages.
 - (b) Make sure that the FMC SSW is set to the "NORMAL" position and then repeat with SSW set to the "RIGHT" to find if there are differences noted in the state of the displayed discretes.
 - (c) For a mismatch, do the steps that follow to find the discrete input:
 - 1) Do this test of the anti-ice discretes:
 - Cowl Anti Ice L
 - Cowl Anti Ice R
 - Wing Anti Ice
 - a) Set the FMC Transfer Switch to the NORMAL position.

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- b) Make sure that the FMCS ANALOG DISCRETES 1/4 page is shown on the two CDUs.
 - <1> If the FMCS ANALOG DISCRETES 1/4 page is not shown, push this sequence of keys on the CDU:
 - <a> Push the INIT REF Mode Key on the two CDUs.
 - Push the LSK 6L, adjacent to INDEX on the two CDUs.
 - <c> Push the LSK 6R, adjacent to MAINT on the two CDUs.
 - <d> Push the LSK adjacent to FMCS on the two CDUs.
 - <e> Push the LSK adjacent to L FMC on the Captain's CDU.
 - <f> Push the LSK adjacent to R FMC on the First Officer's CDU.
 - <g> Push the LSK 4L, adjacent to DISCRETES on the two CDUs.
- c) Put the L PACK and R PACK Switches, on the Forward Overhead Panel, P5, to the HIGH position.
- d) Make sure that the ENG ANTI-ICE 1 and ENG ANTI-ICE 2 Switches are set to the OFF position.
- e) Make sure that the WING ANTI-ICE Switch is set to the OFF position.

 WARNING	MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- f) Make sure that the ground locks are installed in the Nose and Main Landing Gear (Landing Gear Downlock Pins Installation, AMM TASK 32-00-01-480-801).
- g) Make sure that the EXISTING FAULTS shows on the Proximity Switch Electronic Unit (PSEU) Control Panel, M02601.
 - <1> If the PSEU Control Panel is off, push the ON/OFF Button.
 - <2> If EXISTING FAULTS? does not show, push the MENU Button.
 - <a> Push the MENU Button until EXISTING FAULTS? shows.
- h) Push the DOWN ARROW Button on the PSEU Control Panel three times.
 - <1> Make sure that the AIR/GND OVRD? shows on the PSEU Control Panel.
- i) Push the YES Button on the PSEU Control Display Panel.
 - <1> Make sure that the SET SYS1 IN AIR? shows on the PSEU Control Panel.
- j) Push the YES Button on the PSEU Control Panel.
 - <1> Make sure that the ARE YOU SURE? shows on the PSEU Control Panel.
- k) Push the YES Button on the PSEU Control Panel.
 - <1> Make sure that the SYS1 IS IN AIR changes to SET SYS1 ON GND? on the PSEU Control Panel.

NOTE: The flight deck PSEU fault light will stay ON while the AIR/GND system is overridden.

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- <2> Make sure that the OLEO SWITCH discrete on the two CDUs changes from GND to AIR.
 - l) Put the WING ANTI-ICE Switch to the ON position.
 - <1> Make sure that the WING A/ICE discrete on the two CDUs changes to ON.
 - m) Put the WING ANTI-ICE Switch to the OFF position.
 - <1> Make sure that the WING A/ICE discrete on the two CDUs changes to OFF.
 - n) Push the MENU Button on the PSEU Control Panel.
 - <1> Make sure that the RESET OVRD? shows on the PSEU Control Panel.
 - o) Push the YES Button on the PSEU Control Display Panel.
 - <1> Make sure that the ARE YOU SURE? shows on the PSEU Control Panel.
 - p) Push the YES Button on the PSEU control panel.
 - <1> Make sure that the OVRD RESET changes to AIR/GND OVRD? on the PSEU Control Panel.
 - <2> Make sure that the OLEO SWITCH discrete on the two CDUs changes from AIR to GND.
 - q) Put the ENG ANTI-ICE 1 Switch to the ON position.
 - <1> Make sure that the COWL A/ICE LEFT discrete on the two CDUs changes to ON.
 - <2> Make sure that the COWL A/ICE RIGHT discrete on the two CDUs shows OFF.
 - r) Put the ENG ANTI-ICE 1 Switch to the OFF position.
 - <1> Make sure that the COWL A/ICE LEFT discrete on the two CDUs changes to OFF.
 - s) Put the ENG ANTI-ICE 2 Switch to the ON position.
 - <1> Make sure that the COWL A/ICE LEFT discrete on the two CDUs shows OFF.
 - <2> Make sure that the COWL A/ICE RIGHT discrete on the two CDUs changes to ON.
 - t) Put the ENG ANTI-ICE 2 Switch to the OFF position.
 - <1> Make sure that the COWL A/ICE RIGHT discrete on the two CDUs changes to OFF.
 - u) Put the L PACK and R PACK Switches to the OFF position.
 - v) Remove the ground locks in the Nose and Main Landing Gear, if no longer required (Landing Gear Downlock Pins Removal, AMM TASK 32-00-01-080-801).
- 2) Do this test of the pack valves discrettes:
- ECS Pack L
 - ECS Pack R
 - ECS Pack HI LO L
 - ECS Pack HI LO R

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- Engine Bleed No 1
- Engine Bleed No 2
- a) Set the FMC Transfer Switch to the NORMAL position.
- b) Push this sequence of keys on the two CDUs to show the FMCS ANALOG DISCRETE 1/4 page:
 - <1> Push the INIT REF Mode Key on the two CDUs.
 - <2> Push the LSK adjacent to INDEX on the two CDUs.
 - <3> Push the LSK 6R, adjacent to MAINT on the two CDUs.
 - <4> Push the LSK adjacent to FMCS on the two CDUs.
 - <5> Push the LSK adjacent to L FMC on the Captain's CDU.
 - <6> Push the LSK adjacent to R FMC on the First Officer's CDU.
 - <7> Push the LSK 4L, adjacent to DISCRETES on the two CDUs.
- c) Make sure that the L PACK and R PACK Switches, located on the Forward Overhead Panel, P5, are in the OFF position.
- d) Make sure that the BLEED 1 and BLEED 2 Switches are in the ON position.
- e) Make sure that the L PACK and R PACK valve discrete status to reflect OFF.
- f) To get access to the Left Pack Valve, open this access panel:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
- g) Disconnect connector D41500 from the Left Pack Valve, V18.
- h) Make sure that the two CDUs agree with the data shown below (Table 201):

Table 201

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status Left	Discrete Status Right
1	L PACK	AUTO	ECS PACK	ON	OFF
2	L PACK	HIGH	ECS PACK	ON	OFF

- i) To get access to the Right Pack Valve, open this access panel:

<u>Number</u>	<u>Name/Location</u>
192CR	ECS Access Door
- j) Disconnect connector D41600 from the Right Pack Valve, V19.
- k) Make sure that the two CDUs agree with the data shown below (Table 202):

Table 202

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status Left	Discrete Status Right
1	R PACK	AUTO	ECS PACK	ON	ON
2	R PACK	HIGH	ECS PACK	ON	ON
3	R PACK	OFF	ECS PACK	ON	ON

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Table 202 (Continued)

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status Left	Discrete Status Right
4	L PACK	OFF	ECS PACK	ON	ON

- l) Re-connect connector D41500 to the Left Pack Valve, V18.
- m) Re-connect connector D41600 to the Right Pack Valve, V19.
- n) Make sure that the L PACK and R PACK valve discrete status to reflect OFF.
- o) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
192CL	ECS Access Door
- p) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
192CR	ECS Access Door
- q) Make sure that the two CDUs agree with the data shown below (Table 203):

Table 203

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status Left	Discrete Status Right
1	L PACK	OFF	ECS PACK H/L	HI	HI
2	L PACK	AUTO	ECS PACK H/L	LO	HI
3	L PACK	HIGH	ECS PACK H/L	HI	HI
4	R PACK	OFF	ECS PACK H/L	HI	HI
5	R PACK	AUTO	ECS PACK H/L	HI	LO
6	R PACK	HIGH	ECS PACK H/L	HI	HI

- r) Put the L PACK and R PACK Switches to the OFF position.
 - s) If the CDUs do not agree with the data shown above (Table 203), then replace the Left (Right) Pack Valve, V18 (V19). These are the tasks:
 - Left Flow Control and Shutoff Valve Removal, AMM TASK 21-51-01-000-806-003 or Right Flow Control and Shutoff Valve - Removal, AMM TASK 21-51-01-000-805-002 or Right Flow Control and Shutoff Valve Removal, AMM TASK 21-51-01-000-807-003 or Left Flow Control and Shutoff Valve - Removal, AMM TASK 21-51-01-000-802-002
 - Left Flow Control and Shutoff Valve - Installation, AMM TASK 21-51-01-400-805-002 or Right Flow Control and Shutoff Valve - Installation, AMM TASK 21-51-01-400-802-002 or Right Flow Control and Shutoff Valve Installation, AMM TASK 21-51-01-400-806-003 or Left Flow Control and Shutoff Valve Installation, AMM TASK 21-51-01-400-807-003
 - t) If the CDUs agree with the data shown above (Table 203), then continue.
- 3) Do this test of the isolation valve discrete:
- Isolation Valve

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- a) Set the FMC Transfer Switch to the NORMAL position.
 - b) Make sure that the FMCS ANALOG DISCRETES 1/4 page is shown on the two CDUs.
 - <1> If the FMCS ANALOG DISCRETES 1/4 page is not shown, push this sequence of keys on the CDU:
 - <a> Push the INIT REF Mode Key on the two CDUs.
 - Push the LSK 6L, adjacent to INDEX on the two CDUs.
 - <c> Push the LSK 6R, adjacent to MAINT on the two CDUs.
 - <d> Push the LSK adjacent to FMCS on the two CDUs.
 - <e> Push the LSK adjacent to L FMC on the Captain's CDU.
 - <f> Push the LSK adjacent to R FMC on the First Officer's CDU.
 - <g> Push the LSK 4L, adjacent to DISCRETES on the two CDUs.
 - c) Put the L PACK and R PACK Switches, on the Forward Overhead Panel, P5, to the HIGH position.
 - d) Put the ISOLATION VALVE Switch, on the Forward Overhead Panel, P5, to the CLOSE position.
 - <1> Make sure that the ISOL VALVE discrete on the two CDUs shows CL.
 - e) Put the ISOLATION VALVE Switch to the OPEN position.
 - <1> Make sure that the ISOL VALVE discrete on the two CDUs shows OP.
 - f) Put the L PACK and R PACK Switches, on the Forward Overhead Panel, P5, to the OFF position.
- 4) Do this test of the air/ground discrete:
- Airplane Lat/Long position
 - a) Set the FMC Transfer Switch to the NORMAL position.
 - b) If the FMCS ANALOG DISCRETES 1/4 page is not shown, push this sequence of keys on the CDU:
 - <1> Push the INIT REF Mode Key on the two CDUs.
 - <2> Push the LSK 6L, adjacent to INDEX on the two CDUs.
 - <3> Push the LSK 6R, adjacent to MAINT on the two CDUs.
 - <4> Push the LSK adjacent to FMCS on the two CDUs.
 - <5> Push the LSK adjacent to L FMC on the Captain's CDU.
 - <6> Push the LSK adjacent to R FMC on the First Officer's CDU.
 - <7> Push the LSK 4L, adjacent to DISCRETES.



WARNING

MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- c) Make sure that the ground locks are installed in the Nose and Main Landing Gear (Landing Gear Downlock Pins Installation, AMM TASK 32-00-01-480-801).

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- d) Make sure that the EXISTING FAULTS shows on the PSEU Control Panel, M02601.
 - <1> If the PSEU Control Panel is off, push the ON/OFF Button.
 - <2> If EXISTING FAULTS? does not show, push the MENU Button.
 - <a> Push the MENU Button until EXISTING FAULTS? shows.
 - e) Push the DOWN ARROW Button on the PSEU Control Panel three times.
 - <1> Make sure that the AIR/GND OVRD? shows on the PSEU Control Panel.
 - f) Push the YES Button on the PSEU Control Display Panel.
 - <1> Make sure that the SET SYS1 IN AIR? shows on the PSEU Control Panel.
 - g) Push the YES Button on the PSEU Control Panel.
 - <1> Make sure that the ARE YOU SURE? shows on the PSEU Control Panel.
 - h) Push the YES Button on the PSEU Control Panel.
 - <1> Make sure that the SYS1 IS IN AIR changes to SET SYS1 ON GND? on the PSEU Control Panel.

NOTE: The flight deck PSEU fault light will stay ON while the AIR/GND system is overridden.
 - <2> Make sure that the OLEO SWITCH discrete on the two CDUs changes from GND to AIR.
 - i) Push the MENU Button on the PSEU Control Panel.
 - <1> Make sure that the RESET OVRD? shows on the PSEU Control Panel.
 - j) Push the YES Button on the PSEU Control Display Panel.
 - <1> Make sure that the ARE YOU SURE? shows on the PSEU Control Panel.
 - k) Push the YES Button on the PSEU Control Panel.
 - <1> Make sure that the OVRD RESET changes to AIR/GND OVRD? on the PSEU Control Panel.
 - <2> Make sure that the OLEO SWITCH discrete on the two CDUs changes from AIR to GND.
- 5) Do this test of the Mag/True discrete:
- Mag/True
 - a) Set the FMC Transfer Switch to the NORMAL position.
 - b) If the FMCS ANALOG DISCRETES 1/4 page is not shown, push this sequence of keys on the CDU:
 - <1> Push the INIT REF Mode Key on the two CDUs.
 - <2> Push the LSK 6L, adjacent to INDEX on the two CDUs.
 - <3> Push the LSK 6R, adjacent to MAINT on the two CDUs.
 - <4> Push the LSK adjacent to FMCS on the two CDUs.
 - <5> Push the LSK adjacent to L FMC on the Captain's CDU.
 - <6> Push the LSK adjacent to R FMC on the First Officer's CDU.

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- <7> Push the LSK 4L, adjacent to DISCRETES.
 - c) Set the heading reference switch to TRUE.
 - <1> Make sure that both CDUs display TRUE.
 - d) Set the heading reference switch to MAG.
 - <1> Make sure that both CDUs display MAG.
 - e) If there is a mismatch between the CDUs, the faulty FMC should be replaced.
- (3) If no discrete differences are noted, examine if there are any position differences displayed using the FMC POS SHIFT and POS REF pages and compare the two FMC positions to determine if any significant differences are displayed.
- (a) For position related differences, troubleshoot the applicable Global Positioning System (GPS) or Inertial Reference System (IRS) input.
 - (b) If no mismatch is identified, the condition is intermittent.

————— **END OF TASK** —————

SIA 713, 714 PRE SB 737-34-3066 AND PRE SB 737-34-2600

838. FMC Menu Prompt Flashes or is Slow to Respond

A. Description

- (1) The Aircraft Communications Addressing And Reporting System (ACARS) Communications Management Unit (CMU) retains FMC messages which cause a significant reduction in FMC response time. Several of the system prompts on the MCDU for selection were blanking and the FMC map data may not update and cause MAP failure flags.

B. Possible Causes

- (1) CMU, M01109

C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

D. Fault Isolation Procedure

- (1) Do the steps that follow.
- (a) On the front panel of the ACARS CMU, push and then release the RESET button.
 - 1) Make sure that the SYSTEM FAIL and LRU PASS/FAIL front panel LEDs come on momentarily.
NOTE: The two LEDs do not come until the CMU reboots from the reset step.
 - 2) Make sure that the SYSTEM FAIL and LRU PASS/FAIL LEDs go off.
NOTE: The two LEDs do not go off until the CMU is fully up and operational.

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- (2) Open these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

- (a) Wait for at least 30 seconds, then continue.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	16	C01262	FMCS CMPTR 2

NOTE: This should clear the FMC of the datalink queue problem. Also, any previously entered FMC data will be cleared.

- (4) If the problem continues, do the steps that follow.

- (a) Replace the ACARS CMU, M01109. These are the tasks.

- ACARS Communications Management Unit (CMU) Removal, AMM TASK 23-27-33-020-801
- ACARS Communications Management Unit (CMU) Installation, AMM TASK 23-27-33-420-801

- (5) If the problem continues, do the FMC Diagnostic Data Transfer, AMM TASK 34-61-00-810-801.

SIA ALL

———— **END OF TASK** ————

840. VERIFY GW AND FUEL Message on CDU - Fault Isolation

A. Description

- (1) The VERIFY GW AND FUEL message shows on the MCDU when a fault of the total fuel input has been detected by the FMC. The message is inhibited if in descent and a Vref has been selected.

B. Possible Causes

- (1) Input from the Fuel Quantity Indicating System (FQIS) has failed.
- (2) It has been 30 minutes after manual entry of a fuel quantity input into the FMC via the MCDU.

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C00398	FUEL QTY 2
A	6	C00397	FUEL QTY 1

D. Related Data

- (1) SSM 34-61-13
(2) WDM 28-41-11

E. Initial Evaluation

- (1) Check the fuel input on the FMC.
(Flight Management Computer System - Operational Test, AMM TASK 34-61-00-710-801)
(a) If the fuel input shows OK on the MCDU, then there was an intermittent fault.
(b) If the condition shows FAIL, troubleshoot the FQIS.
(FQIS BITE Procedure, 28-41 TASK 801)

F. Fault Isolation Procedure

- (1) Manually enter the estimated fuel weight.
NOTE: Periodic fuel weight update is required for the remainder of the flight to keep gross weight current.

————— **END OF TASK** —————

841. SERVICE BACKLIGHT SOON Message on CDU - Fault Isolation

A. Description

The CDU displays SERVICE BACKLIGHT SOON.

B. Possible Causes

CDU, P9-65 (captain's) or CDU, P9-66 (first officer's).

C. Fault Isolation Procedure

- (1) Replace the CDU.
These are the tasks:
• FMCS Control Display Unit (CDU) Removal, AMM TASK 34-61-01-000-802
• FMCS Control Display Unit (CDU) - Installation, AMM TASK 34-61-01-400-802

————— **END OF TASK** —————

842. OAT DISAGREE - DELETED Message on CDU - Fault Isolation

A. Description

- (1) This task is for this observed fault:
(a) OAT DISAGREE - DELETED message shows on the CDU Scratchpad.
(2) This message only shows on the ground and after an engine start.
(3) This message shows when:
(a) The difference between the Outside Air Temperature (OAT) supplied by the DATALINK and the value of the Engine Temperature Sensor is more than 43°F (6°C).

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B. Possible Causes

- (1) Incorrect OAT input on the N1 LIMIT page of the CDU

C. Fault Isolation Procedure

- (1) On the CDU N1 LIMIT page, make sure that the OAT on the SEL/OAT data field agrees with the OAT supplied by the ATIS.
 - (a) If the OAT on the SEL/OAT data field does not agree with the OAT supplied by the ATIS, enter the OAT supplied by the ATIS on the SEL/OAT data field.

————— **END OF TASK** —————

844. LNAV Disengages During Flight - Fault Isolation

A. Description

- (1) LNAV engagement requires:
 - Active Flight Plan entered into the FMC
 - Valid ADIRU Inputs Including TAT probe
 - Valid GPS Inputs
 - Flight plan to the GOTO waypoint initial track of the airplane intersects the active leg within an angle of 90 degrees or less
 - Cross Track Deviation is within 3 NM to the active leg
- (2) This fault can only occur in flight. Do all Fault Isolation steps in this task to make sure that the system operates correctly before the next flight.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)
- (2) GPS
- (3) FMCS
- (4) Flight Control Computer (FCC)-A (B), M1875 (M1876)
- (5) Total Air Temperature (TAT) Probe, M171

C. Fault Isolation Procedure

- (1) Do a check of the FMCS SENSOR STATUS to make sure that the status of the sensors for the ADIRS and MMR is OK. This is the task: Flight Management Computer System - Operational Test, AMM TASK 34-61-00-710-801.
 - (a) If the status of the sensors for the ADIRS and MMR is not OK, then do these steps:
 - 1) Make sure that the ADIRU inputs are correct. Do this task: ADIRS Input Problem - Fault Isolation, 34-61 TASK 824.
 - 2) Make sure that the GPS inputs are correct. Do this task: GPS Input Problem - Fault Isolation, 34-61 TASK 834.
 - (b) If the status of the sensors for the ADIRS and MMR is OK, then continue.
- (2) Do the FMCS BITE - INFLT FAULT. This is the task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - (a) If you find maintenance messages in the FMCS BITE, then refer to the table at the end of the BITE Task to find the applicable Fault Isolation Manual (FIM) Tasks for the messages that show.
 - (b) If you do not find maintenance messages in the FMCS BITE, then continue.

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- (3) Do the Digital Flight Control System (DFCS) BITE - FAULT HISTORY. This is the task: Digital Flight Control System (DFCS) BITE Procedure, 22-11 TASK 801.
 - (a) If you find maintenance messages in the DFCS BITE, then refer to the table at the end of the BITE Task to find the applicable FIM Tasks for the messages that show.
- (4) Refer to Air Data Reference - System Test, AMM TASK 34-21-00-730-802 to check of the TAT probe and TAT probe heater.
 - (a) If you find that the TAT probe/temperatures are not satisfactory per Aircraft Maintenance Manual (AMM), then replace the TAT Probe, M171. These are the tasks:
 - Total Air Temperature Probe - Removal, AMM TASK 34-21-06-000-801
 - Total Air Temperature Probe - Installation, AMM TASK 34-21-06-400-801

————— **END OF TASK** —————

845. VNAV Disengages During Flight - Fault Isolation

A. Description

- (1) VNAV engagement requires:
 - Active Flight Plan
 - Performance Data entered into the FMC
 - Valid ADIRU Inputs Including TAT probe
 - Valid Fuel Quantity MCP Altitude
- (2) This fault can only occur in flight. Do all Fault Isolation steps in this task to make sure that the system operates correctly before the next flight.

B. Possible Causes

- (1) Left (Right) ADIRU, M1749 (M1752)
- (2) GPS
- (3) Fuel Quantity Indication System (FQIS)
- (4) FMCS
- (5) FCC-A (B), M1875 (M1876)
- (6) TAT Probe, M171

C. Fault Isolation Procedure

- (1) Do a check of the FMCS SENSOR STATUS, to make sure that the status of the sensors for the ADIRS, MMR, and FQIS is OK. This is the task: Flight Management Computer System - Operational Test, AMM TASK 34-61-00-710-801.
 - (a) If the status of the sensors for the ADIRS, MMR, and FQIS is not OK, then do these steps:
 - 1) Make sure that the ADIRU inputs are correct. Do this task: ADIRS Input Problem - Fault Isolation, 34-61 TASK 824.
 - 2) Make sure that the GPS inputs are correct. Do this task: GPS Input Problem - Fault Isolation, 34-61 TASK 834.
 - 3) Make sure that the FQIS inputs are correct. Do this task: FQIS Input Problem - Fault Isolation, 34-61 TASK 826.
 - (b) If the status of the sensors for the ADIRS, MMR, and FQIS is OK, then continue.

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- (2) Do the FMCS BITE - INFLT FAULT. This is the task: Flight Management Computer System BITE Procedure, 34-61 TASK 801.
 - (a) If you find maintenance messages in the FMCS BITE, then refer to the table at the end of the BITE Task to find the applicable FIM Tasks for the messages that show.
 - (b) If you do not find maintenance messages in the FMCS BITE, then continue.
- (3) Do the DFCS BITE - FAULT HISTORY. This is the task: Digital Flight Control System (DFCS) BITE Procedure, 22-11 TASK 801.
 - (a) If you find maintenance messages in the DFCS BITE, then refer to the table at the end of the BITE Task to find the applicable FIM Tasks for the messages that show.
- (4) Refer to Air Data Reference - System Test, AMM TASK 34-21-00-730-802 to do the check of the TAT probe and TAT probe heater.
 - (a) If you find that the TAT probe/temperatures are not satisfactory per AMM, then replace the TAT Probe, M171. These are the tasks:
 - Total Air Temperature Probe - Removal, AMM TASK 34-21-06-000-801
 - Total Air Temperature Probe - Installation, AMM TASK 34-21-06-400-801

————— **END OF TASK** —————

| SIA ALL WITH ATN DB

846. ATN DATA BASE INVALID shows on the CDU scratchpad - Fault Isolation

A. Description

- (1) This task is for this observed fault:
 - (a) ATN DATA BASE INVALID show on the CDU scratchpad.
- (2) This message will show on the ground if the ATN data base is not available or loaded.

B. Possible Causes

- (1) FMC Software Configuration

C. Fault Isolation Procedure

- (1) Do a software configuration check of the FMC. This is the task: FMC Software Configuration Check, AMM TASK 34-61-00-750-801.
 - (a) If the observed fault symptom is gone, then you corrected the fault.

————— **END OF TASK** —————

SIA 706-710, 716-999; SIA 702-705, 711-714 POST SB 737-34-3066

| 848. CDU DATALINK FULL shows on the PERF INIT page - Fault Isolation

A. Description

- (1) This task is for this observed fault:
 - (a) The DATALINK FULL message shows on the CDU PERF INIT page.
- (2) The DATALINK FULL message indicates that the downlink queue is full and the FMC is incapable of sending additional downlink messages until the queue has been cleared.

B. Possible Causes

- (1) Cycle NAVIGATION FMC Source Select Switch (Flight Deck) [P5-28S5]
- (2) Cycle Circuit Breakers

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C. Circuit Breakers

- (1) These are the primary circuit breakers related to the fault:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2
D	16	C01262	FMCS CMPTR 2

D. Related Data

- (1) SSM 34-61-11
(2) WDM 34-61-11

E. Fault Isolation Procedure

- (1) Set the NAVIGATION FMC source select switch (flight deck) to BOTH ON R.
(a) Wait a minimum of 30 - 40 seconds.
(b) Set the NAVIGATION FMC source select switch to NORMAL.
(2) Do the Repair Confirmation at the end of this task.
(3) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2
D	16	C01262	FMCS CMPTR 2

- (4) Wait a minimum of 30 seconds.
(5) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C01017	FMCS CMPTR 1
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C01239	FMCS MCDU 2
D	16	C01262	FMCS CMPTR 2

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| SIA 706-710, 716-999; SIA 702-705, 711-714 POST SB 737-34-3066 (Continued)

- (6) Wait a minimum of 60 seconds.
- (7) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

- (1) Do a check on the CDU PERF INIT page.
 - (a) If the observed fault does not show on the page, then you corrected the fault.
 - (b) If the observed fault continues to show on the page, then continue.

———— **END OF TASK** ————

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1. FUTURE AIR NAVIGATION SYSTEM (FANS)

- A. The Future Air Navigation System (FANS) is part of the FMCS and provides direct Datalink Communication between the aircraft and ground, for Air Traffic Control (ATC) and Airline Operational Communications (AOC) Ground Operations.
- (1) The components that follow are required for the correct operation of FANS:
- FMC
 - MCDU
 - ACARS or CMU
 - Multi-Function Printer
 - CDS
 - Very High Frequency (VHF) Radio
 - High Frequency (HF) Radio
- (2) Satellite Communication (SATCOM) is required for FANS for flights over Oceanic Regions or for remote communications where terrestrial contact is unavailable.
- (a) The ATS DATALINK option must be enabled in the FMCS to permit operation in a FANS Environment.
- (b) ATS DATALINK option enables Controller Pilot Datalink Communication (CPDLC) and Automatic Dependent Surveillance - Contract (ADS-C). This provides periodic position data reporting, and Air Transport System (ATS) Facility Notification (AFN), which sends the aircraft address to the ATC facility.
- B. FANS Fault Isolation
- (1) Some common Flight Deck Effect (FDE)s associated with Datalink issues are:
- NO COMM shows in the CDU
 - DATA LINK FAIL status indications on the ATC LOGON/STATUS page
 - REJECTED status indications on the ATC LOGON/STATUS page during LOGON
 - No annunciators when Uplink Messages are received
 - Reports from the Ground Station about incomplete Downlink Messages
 - LOGON prompt does not show
 - SENDING message does not change to SENT on the ATC LOGON/STATUS page
- (a) Refer to the indexes below to find the applicable FIM Tasks for FANS problems:
- 1) 23-FAULT CODE INDEX
 - 2) 23-MAINT MSG INDEX
 - 3) 34-FAULT CODE INDEX
 - 4) 34-MAINT MSG INDEX
- (2) CPDLC issues could be due to Ground Link Stations or Network problems in addition to airplane systems.
- (3) Also, it is possible that problems associated with the CPDLC can be intermittent in nature or associated with the various assets outside of the airplane.
- (4) CPDLC issues could require a review of the Datalink Audit Logs or the FMC BITE to determine the root cause.

